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ARISTOTLE.

By GEORGE GROTE, F.R.S.,

D.C.L. OXFORD, AND LL.D. CAMBRIDGE;
LATE VICE-CHANCELLOR OF THE UNIVERSITY OF LONDON;
PRESIDENT OF UNIVERSITY COLLEGE, LONDON;
AND FOREIGN MEMBER OF THE INSTITUTE OF FRANCE.



EDITED BY

ALEXANDER BAIN, LL.D.,

PROFESSOR OF LOGIC IN THE UNIVERSITY OF ABERDEEN,

AND

G. CROOM ROBERTSON, M.A.,

PROFESSOR OF PHILOSOPHY OF MIND AND LOGIC IN UNIVERSITY COLLEGE, LONDON.

IN TWO VOLUMES.

VOL. I.

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PREFACE BY THE EDITORS.

THE Historian of Greece, when closing his great narrative in the year 1856, promised to follow out in a separate work that speculative movement of the fourth century B.C. which upheld the supremacy of the Hellenic intellect long after the decline of Hellenic liberty. He had traced the beginnings of the movement in the famous chapter on Sokrates, but to do justice to its chief heroes—Plato and Aristotle—proved to be impossible within the limits of the History. When, however, the promised work appeared, after nine laborious years, it was found to compass only Plato and the other immediate companions of Sokrates, leaving a full half of the appointed task unperformed. Mr. Grote had already passed his 70th year, but saw in this only a reason for turning, without a moment's pause, to the arduous labour still before him. Thenceforth, in spite of failing strength and the increasing distraction of public business, he held steadily on till death overtook him in the middle of the course. What he was able to accomplish, though not what study he had gone through towards the remainder of his design, these volumes will show. The office of preparing and superintending their publication was entrusted to the

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present editors by Mrs. Grote, in the exercise of her discretion as sole executrix under his last Will.

As now printed, the work has its form determined by the author himself up to the end of Chapter XI. The first two chapters, containing a biography of Aristotle and a general account of his works, are followed by a critical analysis, in eight chapters, of all the treatises included under the title 'Organon'; and in the remaining chapter of the eleven the handling of the Physica and Metaphysica (taken together for the reasons given) is begun. What now stand as Chapters III., IV., &c., were marked, however, as Chapters VI., VII., &c., by the author; his design evidently being to interpolate before publication three other chapters of an introductory cast. Unfortunately no positive indication remains as to the subject of these; although there is reason to believe that, for one thing, he intended to prefix to the detailed consideration of the works a key to Aristotle's perplexing terminology. Possibly also he designed to enter upon a more particular discussion of the Canon, after having viewed it externally in Chapter II.; citations and references bearing on such a discussion being found among his loose notes.

What might have been the course of the work from the point where it is broken off, is altogether matter of inference, beyond an indication of the subject of the chapter next to follow; but the remarks at the beginning of Chapter III. point to some likely conclusions. After the metaphysical discussions, which must have been prolonged through several chapters, there would

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probably have been taken in order the treatises De Cœlo, De Generatione et Corruptione, the Meteorologica, and next the various Biological works; though with what detail in each case it is impossible to guess. Then must have followed the De Animâ with the minor Psychological treatises summed up as Parva Naturalia, and next, without doubt, the Ethica and Politica; last of all, the Rhetorica and Poetica. That Mr. Grote had carefully mastered all these works is evident from his marginal annotations in the various copies which he read. With the Ethica and Politica in particular he had early been familiar, and most there is reason to regret that he has left nothing worked out upon this field so specially his own. Fortunately it happens that on the psychological field next adjoining there is something considerable to show.

In the autumn of 1867 Mr. Grote undertook to write a short account of Aristotle's striking recognition of the physical aspect of mental phenomena, to be appended to the third edition of the senior editor's work, 'The Senses and the Intellect'; but, on following out the indications relative to that point, he was gradually led by his interest in the subject to elaborate a full abstract of the De Animâ and the other psychological treatises. Several months were spent on this task, and at the end he declared that it had greatly deepened his insight into Aristotle's philosophy as a whole. He also expressed his satisfaction at having thus completed an exposition of the Psychology, fitted to stand as his contribution to that part of Aristotle,

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in case he should never reach the subject in the regular course of his general work. The exposition was printed in full at the time (1868), and drew the attention of students. It is now reprinted, with the prominence due to its literary finish and intrinsic value, as a chapter—the last—in the body of the present work.

The long Appendix coming after is composed of elements somewhat heterogeneous; but the different sections were all written in the period since 1865, and all, not excepting the last two (treating briefly of Epikurus and the Stoics), have a bearing upon the author's general design.

The first section—an historical account of ancient theories of Universals—has already seen the light.[a] It brings together, as nowhere else, all the chief references to the doctrine of Realism in Plato, and exhibits the directly antagonistic position taken up by Aristotle towards his master. This it does so impressively that there could be no question of excluding it, even although it reproduces in part some of the matter of Chapter III., on the Categories. Being composed, in 1867, later than this Chapter, it is on that account written with all the firmer a grasp. On finishing it as it stands, Mr. Grote, in a private letter, expressed himself in terms that deserve to be quoted :—"I never saw before so clearly the extreme importance of Ari-

[a] In the Appendix to the senior editor's 'Manual of Mental and Moral Science' (1867).

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stotle's speculations as the guides and stimulants of mediæval philosophy. If I had time to carry the account farther, I should have been able to show how much the improved views of the question of Universals depended on the fact that more and more of the works of Aristotle, and better texts, became known to Albertus Magnus, Thomas Aquinas, and their successors. During the centuries immediately succeeding Boëthius, nothing of Aristotle except the Categories and the treatise De Interpretatione was known, and these in a Latin translation. Most fortunately the Categories was never put out of sight; and it is there that the doctrine of *Substantia Prima* stands clearly proclaimed."

The second section, or, rather, the part therein treating of Aristotle's doctrine of First Principles, is also a reprint. It was composed (in 1867) at the same time as the section on Universals, and was printed along with that; shorn, however, of the critical examination of Sir William Hamilton's views on Aristotle, which is now prefixed to the statement of the Aristotelian doctrine. Hamilton having (in Note A, appended to his edition of Reid's Works) claimed Aristotle as a supporter of the Philosophy of Common Sense, basing upon a long list of passages quoted, these were subjected by Mr. Grote to a searching criticism, the pointed vigour of which will be duly appreciated. The statement of his own view of Aristotle's doctrine, though containing little that may not be found at more places than one in the body of the present work, is yet reprinted, because iteration was his favourite art for impressing anything

to which he attached as much importance as he did attach to this conviction of his, regarding the very heart of Aristotle's thought.

The long abstracts of six books of the Metaphysica and two books of the De Cœlo, next following in the Appendix, are sections of a character altogether different from the foregoing. Evidently not intended for publication, they have been included, partly as furnishing some indication of the labour the author underwent in seeking to lay hold of his subject, partly because of their inherent value. From the first motive, they are here reproduced as nearly as possible in the guise they wore as preliminary drafts, bestrewed with references. Their value consists in the fact that they give Mr. Grote's interpretation of the text of treatises at once exceedingly difficult and important: difficult, as is proved by the great divergence among commentators at many points; important, not more for the deeper aspects of Aristotle's own system, than for the speculations of the earlier Greek philosophers on which they are the classical authority. What relation, in the case of each treatise, the books abstracted (often translated) hold to the other books left untouched, is specially indicated at the beginning of the third section and at the end of the fourth. Here let it suffice to mention that each abstract has a certain completeness in itself, and at the same time a bond of connection with the other. The abstract of the Metaphysica closes where Aristotle descends to speak of the concrete heavenly bodies, and just as much of the De Cœlo is

given as treats specially of these. This connection, whether or not it was present to the author's mind, enhances the value of the abstracts as here presented.[a]

In the remaining sections of the Appendix, not dealing with Aristotle, the short account of Epikurus aims at setting in its true light a much-maligned system of thought. On writing it, in 1867, Mr. Grote remarked that the last word had not yet been said on Epikurus. The ethical part of the sketch was printed at the time:[b] the whole is now given. More fragmentary is the notice of the Stoics, as merely replacing passages that he considered inadequate in a sketch submitted to him. Since it formed part of his entire design to add to the treatment of Aristotle a full exposition both of Stoic and Epikurean doctrines, considered as the outgrowth of the Cynic and Kyrenaic theories already handled at the end of the 'Plato,' the two fragments may not unfitly close the present work.

Taken altogether, the two volumes are undoubtedly a most important contribution to the history of ancient thought. As regards Aristotle, the author's design must be gathered chiefly from the first eleven chapters, —begun as these were in 1865, and proceeded with in their order, till he was overtaken, in the act of com-

[a] The author carried the abstract of De Cœlo a little farther, and then abruptly broke it off; probably finding himself borne too far away from the logical treatises with which he was at the time dealing.

[b] Also in the 'Manual of Mental and Moral Science,' among 'Ethical Systems.'

posing the last, by the insidious malady which, after six months, finally carried him off. Perhaps the most striking feature in the exposition of the Organon, is the very full analysis given of the long treatise called Topica. While the other treatises have all, more or less, been drawn upon for the ordinary theory of Logic, the Topica, with its mixed logical and rhetorical bearings, has ceased to be embodied in modern schemes of discipline or study. Mr. Grote's profound interest in everything pertaining to Dialectic drew him especially to this work, as the exhibition in detail of that habit of methodized discussion so deeply rooted in the Hellenic mind. And in the same connection it may be noted how the natural course of his own work brought him, in the last months of his intellectual activity, to tread again old and familiar ground. A plea — this time against Aristotle — for the decried Sophists, and, once more, a picture of that dialectical mission of Sokrates which for him had an imperishable charm, were among the very last efforts of his pen.

Besides making up the Second Volume from the end of Chapter XI., the editors have, throughout the whole work bestowed much attention on the notes and references set down by the author with his usual copious minuteness. It was deemed advisable to subject these everywhere to a detailed verification; and, though the editors speak on the matter with a diffidence best understood by those who may have undergone a similar labour, it is hoped that a result not

unworthy of the author has been attained. In different places additional references have been supplied, either where there was an obvious omission on the author's part, or in farther confirmation of his views given in the text: such references, mostly to the works of Aristotle himself, it has not been thought necessary to signalize. Where, as once or twice in the Appendix, a longer note in explanation seemed called for, this has been printed within square brackets.

From the text some passages, where the iterations seemed excessive, have been withheld, but only such as it was thought the author would himself have struck out upon revision: wherever there was evidence that revision had been made, the iterations, freely employed for emphasis, have been allowed to stand. On rare occasions, interpolations and verbal changes have been made with the view of bringing out more clearly the meaning sought to be conveyed. It is impossible to be more deeply sensible than the editors are, of the responsibility they have thus incurred; but they have been guided by their very respect for the venerable author, and they were fortunate in the many opportunities they enjoyed of learning from his own lips the cast of his views on Aristotle.*

An index has been drawn up with some care; as was needful, if meant to be of real service to the readers of so elaborate a work.

* It is but due to the younger editor to state that the heaviest part of all the work here indicated has been done by him.—A. B.

It only remains to add that in printing the Greek of the notes, &c., the text of Waitz has been followed for the Organon (everywhere short of the beginning); the text of Bonitz, for the Metaphysica; and for other works of Aristotle, generally the Berlin edition. Regard was had, as far as the editors' knowledge went, to the author's own preferences in his reading.

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ARISTOTLE.

CHAPTER I.

LIFE OF ARISTOTLE.

In my preceding work, 'Plato and the Other Companions of Sokrates,' I described a band of philosophers differing much from each other, but all emanating from Sokrates as common intellectual progenitor; all manifesting themselves wholly or principally in the composition of dialogues; and all living in an atmosphere of Hellenic freedom, as yet untroubled by any overruling imperial ascendancy from without. From that band, among whom Plato is *facilè princeps*, I now proceed to another, among whom the like pre-eminence belongs to Aristotle. This second band knew the Sokratic stimulus only as an historical tradition; they gradually passed, first from the Sokratic or Platonic dialogue — dramatic, colloquial, cross-examining — to the Aristotelian dialogue, semi-dramatic, rhetorical, counter-expository; and next to formal theorizing, ingenious solution and divination of special problems, historical criticism and abundant collections of detailed facts: moreover, they were witnesses of the extinction of freedom in Hellas, and of the rise of the Macedonian kingdom out of comparative nullity to the highest pinnacle of supremacy and mastership. Under the successors of Alexander, this extraneous supremacy, intermeddling and dictatorial, not only overruled the

political movements of the Greeks, but also influenced powerfully the position and working of their philosophers; and would have become at once equally intermeddling even earlier, under Alexander himself, had not his whole time and personal energy been absorbed by insatiable thirst for eastern conquest, ending with an untimely death.

Aristotle was born at Stageira, an unimportant Hellenic colony in Thrace, which has obtained a lasting name in history from the fact of being his birthplace. It was situated in the Strymonic Gulf, a little north of the isthmus which terminates in the mountainous promontory of Athos; its founders were Greeks from the island of Andros, reinforced afterwards by additional immigrants from Chalkis in Eubœa. It was, like other Grecian cities, autonomous—a distinct, self-governing community; but it afterwards became incorporated in the confederacy of free cities under the presidency of Olynthus. The most material feature in its condition, at the period of Aristotle's birth, was, that it lay near the frontier of Macedonia, and not far even from Pella, the residence of the Macedonian king Amyntas (father of Philip). Aristotle was born, not earlier than 392 B.C., nor later than 385–384 B.C. His father, Nikomachus, was a citizen of Stageira, distinguished as a physician, author of some medical works, and boasting of being descended from the heroic *gens* of the Asklepiads; his mother, Phaestis, was also of good civic family, descended from one of the first Chalkidian colonists.* Moreover, Nikomachus was not merely learned in his art, but was accepted as confidential physician and

* Diog. L. v. 10. This was probably among the reasons which induced Aristotle to prefer Chalkis as his place of temporary retirement, when he left Athens after the death of Alexander.

friend of Amyntas, with whom he passed much of his time—a circumstance of great moment to the future career of his son. We are told that among the Asklepiads the habit of physical observation, and even manual training in dissection, were imparted traditionally from father to son, from the earliest years, thus serving as preparation for medical practice when there were no written treatises to study.[a] The mind of Aristotle may thus have acquired that appetite for physiological study which so many of his treatises indicate.

Respecting the character of his youth, there existed, even in antiquity, different accounts. We learn that he lost his father and mother while yet a youth, and that he came under the guardianship of Proxenus, a native of Atarneus who had settled at Stageira. According to one account, adopted apparently by the earliest wit-

[a] Galen, De Anatomicis Administr. ii. 1. T. ii. pp. 280-281, ed. Kühn. *παρὰ τοῖς γονεῦσιν ἐκ παίδων ἀσκουμένους, ὥσπερ ἀναγινώσκειν καὶ γράφειν, οὕτως ἀνατέμνειν*—(compare Plato—Protagoras, p. 328 A, p. 311 C).

Diog. L. v. 1. *Ὁ δὲ Νικόμαχος ἦν ἀπὸ Νικομάχου τοῦ Μαχάονος τοῦ Ἀσκληπιοῦ, καθά φησιν Ἕρμιππος ἐν τῷ περὶ Ἀριστοτέλους καὶ συνεβίω Ἀμύντᾳ τῷ Μακεδόνων βασιλεῖ ἰατροῦ καὶ φίλου χρείᾳ.*

We here learn that in the heroic genealogy of the Asklepiads, the son of Machaon himself bore the name of Nikomachus. I do not think that Will. v. Humboldt and Bernays are warranted in calling Aristotle "ein Halbgrieche," "kein vollbürtiger Hellene"—(Die Dialoge des Aristoteles, pp. 2-56-134). An Hellenic family which migrated from Athens, Chalkis, Corinth, etc., to establish a colony on the coast of Thrace, or Asia Minor, did not necessarily lose its Hellenism. One cannot designate Demokritus, Xenokrates, Anaxagoras, Empedokles, &c., half Greeks.

Diogenes here especially cites Hermippus (B.C. 220-210), from whom several of his statements in this and other biographies appear to have been derived. The work of Hermippus seems to have been entitled "Lives of the Philosophers" (v. 2), among which lives that of Aristotle was one.

Hermippus mentioned, among other matters, communications made to Aristotle by Strœbus (a person engaged in the service of Kallisthenes as reader) respecting the condemnation and execution of Kallisthenes in Baktria, by order of Alexander (Plutarch, Alex. c. 54). From what source did Hermippus derive these statements made by Strœbus to Aristotle?

nesses preserved to us,[a] he was at first an extravagant youth, spent much of his paternal property, and then engaged himself to military service; of which he soon became weary, and went back to Stageira, turning to account the surgical building, apparatus, and medicines left by his father as a medical practitioner. After some time, we know not how long, he retired from this profession, shut up the building, and devoted himself to rhetoric and philosophy. He then went to Athens, and there entered himself in the school of Plato, at the age of thirty.[b] The philosophical life was thus (if this account be believed) a second choice, adopted comparatively late in life.[c] The other account,

[a] Epikurus and Timæus. *Ἐπίκουρος ἐν τῇ περὶ ἐπιτηδευμάτων ἐπιστολῇ* (Eusebius, Præp. Ev. xv. 5)—Diogen. L. x. 8; Ælian. V. H. v. 9.

[b] An author named Eumêlus (cited by Diogenes, v. 6, *ἐν τῇ πέμπτῃ τῶν ἱστοριῶν*, but not otherwise known) stated that Aristotle came to Plato at the age of thirty, and that he lived altogether to seventy years of age, instead of sixty-three, as Hermippus and Apollodorus affirmed. Eumêlus conceived Aristotle as born in 392 B.C., and coming to Plato in 362 B.C. His chronological data are in harmony with the statements of Epikurus and Timæus respecting the early life of Aristotle. The *Βίος Ἀνώνυμος* given by Ménage recognises two distinct accounts as to the age at which Aristotle died: one assigning to him 70 years, the other only 63.

[c] See the Fragments of Timæus in Didot, Fragmenta Historicorum Græcorum, Fr. 70-74; also Aristokles, ap. Eusebium, Præp. Evang. xv. 2; Diogenes, L. x. 8; Athenæus, viii. p. 354. Timæus called Aristotle *σοφιστὴν ὀψιμαθῆ καὶ μισητόν, καὶ τὸ πολυτίμητον ἰατρεῖον ἀρτίως ἀποκεκλεικότα*. The speaker in Athenæus designates him as *ὁ φαρμακοπώλης*. The terms used by these writers are illtempered and unbecoming in regard to so great a man as Aristotle; but this is irrelevant to the question, whether they do not describe, in perverted colouring, some real features in his earlier life, or whether there was not, at least, a chronological basis of possibility for them. That no such features were noticed by other enemies of Aristotle, such as Eubulides and Kephisodôrus, is a reason as far as it goes for not believing them to be real, yet not at all a conclusive reason; nor is the speaker in Athenæus exact when he says that Epikurus is the *only* witness, for we find Timæus making the same statements. The *ἰατρεῖον* (see Antiphanes, apud Poll. iv. 183—Fragmenta Comic. cxxv., Meineke) of a Greek physician (more properly we should call the *ἰατρὸς a general practitioner and chemist*) was the repository of his materials and the scene of his important operations; for many of which

depending also upon good witnesses, represents him as having come to Athens and enlisted as pupil of Plato, at the early age of seventeen or eighteen: it omits all mention of an antecedent period, occupied by military service and a tentative of medical profession.[a] In both the two narratives, Aristotle appears as resident at Athens, and devoting himself to rhetoric and philosophy, from some period before 360 B.C. down to the death of Plato in 347 B.C.; though, according to the first of the two narratives, he begins his philosophical career at a later age, while his whole life occupied seventy years instead of sixty-two years.

During the interval, 367–360 B.C., Plato was much absent from Athens, having paid two separate visits

instructions are given in the curious Hippokratic treatise entitled Κατ' Ἰητρεῖον, vol. iii. pp. 262-337 of the edition of M. Littré, who in his preface to the treatise, p. 265, remarks about Aristotle:—"Il paraît qu'Aristote, qui était de famille médicale, avoit renoncé à une officine de ce genre, d'une grande valeur." Stahr speaks of this *Iατρεῖον* as if Aristotle had set up one *at Athens* (Aristotelia, p. 38), which the authorities do not assert; it was probably at Stageira. Ideler (Comm. ad Aristot. Meteorol. iv. 3, 16, p. 433) considers this story about Aristotle's *Iατρεῖον* to have been a fiction arising out of various expressions in his writings about the preparation of drugs — τὰ *φάρμακα ἕψειν*, &c. I think this is far-fetched. And when we find Aristokles rejecting the allegation about the *Iατρεῖον*, by speaking of it as an *ἄδοξον Iατρεῖον*, we can admit neither the justice of the epithet nor the ground of rejection.

[a] This account rested originally (so far as we know) upon the statement of Hermippus (B.C. 220), and was adopted by Apollodôrus in his Chronology (B.C. 150), both of them good authorities, yet neither of them so early as Epikurus and Timæus. Diogenes Laertius and Dionysius of Halikarnassus alike follow Hermippus. Both the life of Aristotle ascribed to Ammonius, and the Anonymous Life first edited by Robbe (Leyden, 1861, p. 2), include the same strange chronological blunder: they affirm Aristotle to have come to Athens at the age of seventeen, and to have frequented the society of *Sokrates* (who had been dead more than thirty years) for three years; then to have gone to Plato at the age of twenty. Zeller imagines, and I think it likely, that Aristotle may have been for a short time pupil with *Isokrates*, and that the story of his having been pupil with *Sokrates* has arisen from confusion of the two names, which confusion has been seen on several occasions (Zeller, Gesch. der Philos. der Griechen, ii. 2, p. 15).

to Dionysius the younger at Syracuse. The time which he spent there at each visit is not explicitly given; but as far as we can conjecture from indirect allusions, it cannot have been less than a year at each, and may possibly have been longer. If, therefore, Aristotle reached Athens in 367 B.C. (as Hermippus represents) he cannot have enjoyed continuous instructions from Plato for the three or four years next ensuing.

However the facts may stand as to Aristotle's early life, there is no doubt that in or before the year 362 B.C. he became resident at Athens, and that he remained there, profiting by the society and lectures of Plato, until the death of the latter in 347 B.C. Shortly after the loss of his master, he quitted Athens, along with his fellow-pupil Xenokrates, and went to Atarneus, which was at that time ruled by the despot Hermeias. That despot was a remarkable man, who being an eunuch through bodily hurt when a child, and having become slave of a prior despot named Eubulus, had contrived to succeed him in the supreme power, and governed the towns of Atarneus and Assos with firmness and energy. Hermeias had been at Athens, had heard Plato's lectures, and had contracted friendship with Aristotle; which friendship became farther cemented by the marriage of Aristotle, during his residence at Atarneus, with Pythias the niece of Hermeias.[a] For three years

[a] Strabo, xiii. 610; Diodor. xvi. 52. It appears that Aristotle incurred censure, even from contemporary rivals, for this marriage with Pythias. On what ground we cannot exactly make out (Aristokles ap. Eusebium Præp. Ev. xv. 2), unless it be from her relationship to Hermeias. She died long before Aristotle, but he mentions her in his will in terms attesting the constant affection which had reigned between them until her death. Aristotle thought it right to reply to the censure in one of his letters to Antipater.

Aristokles (ap. Euseb. Præp. Ev. xv. 2) says that Aristotle did not marry Pythias until after the death of Hermeias, when she was compelled to save herself by flight, and was in distress and poverty.

Mr. Blakesley (Life of Aristotle, p.

Aristotle and Xenokrates remained at Assos or Atarneus, whence they were then forced to escape by reason of the despot's death; for Mentor the Rhodian, general of the Persians in those regions, decoyed Hermeias out of the town under pretence of a diplomatic negociation, then perfidiously seized him, and sent him up as prisoner to the Persian king, by whose order he was hanged. Mentor at the same time seized the two towns and other possessions of Hermeias,[a] while Aristotle with his wife retired to Mitylene. His deep grief for the fate of Hermeias was testified in a noble hymn or pæan which he composed, and which still remains, as well as by an epigram inscribed on the statue of Hermeias at Delphi. We do not hear of his going elsewhere, until, two or three years afterwards (the exact date is differently reported), he was invited by Philip into Macedonia, to become preceptor to the young prince Alexander, then thirteen or fourteen years old. The reputation, which Aristotle himself had by this time established, doubtless coincided with the recollection of his father Nikomachus as physician and friend of Amyntas, in determining Philip to such a choice. Aristotle performed the duties required from him,[b] enjoying the confidence and favour

36) and Oncken (Die Staatslehre des Aristoteles, p. 158) concur in thinking that the departure of Aristotle from Athens had nothing to do with the death of Plato, but was determined by the capture of Olynthus, and by the fear and dislike of Philip which that event engendered at Athens. But the fact that Xenokrates left Athens along with Aristotle disproves this supposition, and proves that the death of Plato was the real cause.

[a] Diog. Laert. v. 7-8. Diodorus ascribes this proceeding to Mentor the Rhodian: Strabo, to his brother Memnon. I think Diodorus is right. A remarkable passage in the Magna Moralia (genuine or spurious) of Aristotle, seems to me to identify the proceeding with Mentor (Aristot. Magn. Mor. i. 35, p. 1197, b. 21; as also the spurious second book of the Œkonomica, p. 1351, a. 33).

[b] It was probably during this period that Aristotle introduced to Alexander his friend the rhetor Theodektês of Phasêlis. Alexander took delight in the society of Theodektês, and testified this feeling, when he conquered Phasêlis, by demonstrations of affection

both of Philip and Alexander, until the assassination of the former and the accession of the latter in 336 B.C. His principal residence during this period was in Macedonia, but he paid occasional visits to Athens, and allusion is made to certain diplomatic services which he rendered to the Athenians at the court of Philip; moreover, he must have spent some time at his native city Stageira,[a] which had been among the many Greek cities captured and ruined by Philip during the Olynthian war of 349–347 B.C. Having obtained the consent and authority of Philip, Aristotle repaired to Stageira for the purpose of directing the re-establishment of the city. Recalling such of its dispersed inhabitants as could be collected, either out of the neighbouring villages or from more distant parts, he is said to have drawn up laws, or framed regulations for the returned citizens and new comers. He had reason to complain of various rivals who intrigued against him, gave him much trouble, and obstructed the complete renovation of the city; but, notwithstanding, his services were such that an annual festival was instituted to commemorate them.[b] It is farther stated, that at some time during this period he had a school (analogous to the Academy at Athens) in the Nymphæum of the place called Mieza; where

and respect towards the statue of the rhetor, who had died during the intervening years — *ἀποδιδοὺς τιμὴν τῇ γενομένῃ δι' Ἀριστοτέλην καὶ φιλοσοφίαν ὁμιλίᾳ πρὸς τὸν ἄνδρα* (Plutarch, Alex. c. 17).

[a] It is to this period of Aristotle's life that the passage extracted from his letters in Demetrius (so-called *περὶ Ἑρμηνείας*) refers. *ὡς Ἀριστοτέλης φησίν—ἐγὼ ἐκ μὲν Ἀθηνῶν εἰς Στάγειρα ἦλθον διὰ τὸν βασιλέα τὸν μέγαν, ἐκ δὲ Σταγείρων εἰς Ἀθήνας διὰ τὸν χειμῶνα τὸν μέγαν*—s. 29.

We shall hardly consider this double employment of the epithet *μέγαν* as an instance of that success in epistolary style, which Demetrius ascribes to Aristotle (s. 239); but the passage proves Aristotle's visits both to Stageira and to Athens. The very cold winters of the Chalkidic peninsula were severely felt by the Greeks (Plato—Symposion, p. 220), and may well have served as motive to Aristotle for going from Stageira to Athens.

[b] Ammonius, Vit. Aristot. See the curious statements given by Dion

stone seats and shady walks, ennobled by the name of Aristotle, were still shown even in the days of Plutarch.*

In 336 B.C. Alexander became king of Macedonia, and his vast projects for conquest, first of Persia, next of other peoples known and unknown, left him no leisure for anything but military and imperial occupations. It was in the ensuing year (335 B.C.) when the preparations for the Persian expedition were being completed, ready for its execution in the following spring, that Aristotle transferred his residence to Athens. The Platonic philosophical school in which he had studied was now conducted by Xenokrates as Scholarch, having passed at the death of Plato, in 347 B.C., to his nephew Speusippus, and from the latter to Xenokrates in 339 B.C. Aristotle established for himself a new and rival school on the eastern side of Athens, in the gymnasium attached to the temple of Apollo Lykeius, and deriving from thence the name by which it was commonly known—the Lykeium. In that school,

Chrysostom, out of the epistles of Aristotle; Orat. ii. p. 100, xlvii. p. 225, Reiske.

Respecting the allusions made in these statements to various persons who were reluctant to return out of the separate villages into the restored city, compare what Xenophon says about the *διοίκισις*, and subsequent restitution, of Mantineia; Hellenica, v. 2, 1-8, vi. 5, 3-6.

* Plutarch, Alexander, c. 7. What Plutarch calls the *Nymphæum*, is considered by Stahr (Aristotelia, i. p. 93, n.) to be probably the same as what Pliny denominates the *Museum* at Stageira (N. H. xvi. c. 23); but Zeller (p. 23, n.), after Geier, holds that Mieza lay S. W. of Pella, in Emathia, far from Stageira. Plutarch seems to imply that Aristotle was established along with Alexander at Mieza by Philip.

Compare, for these facts of the biography of Aristotle, Stahr, Aristotelia, Part I., pp. 86-94, 103-106.

I conceive that it was during this residence in Macedonia and at Pella, that Aristotle erected the cenotaph in honour of Hermeias, which is so contemptuously derided by the Chian poet Theokritus in his epigram, Diog. L. v. 11. The epigram is very severe on Aristotle, for preferring Pella to the Academy as a residence; ascribing such preference to the exigencies of an ungovernable stomach.

and in the garden adjoining, he continued to lecture or teach, during the succeeding twelve years, comprising the life and the brilliant conquests of Alexander. Much of his instruction is said to have been given while walking in the garden, from whence the students and the sect derived the title of Peripatetics. In the business of his school and the composition of his works all his time was occupied; and his scholars soon became so numerous that he found it convenient to desire them to elect from themselves every ten days a rector to maintain order, as Xenokrates had already done at the Academy.[a] Aristotle farther maintained correspondence, not merely with Alexander and Antipater but also with Themison, one of the princes of Cyprus, as Isokrates had corresponded with Nikokles, and Plato with Dionysius of Syracuse.[b]

In June, 323 B.C., occurred the premature and unex-

[a] Diog. L. v. 4. Brandis notes it as a feature in Aristotle's character (p. 65), that he abstained from meddling with public affairs at Athens. But we must remember, that, not being a citizen of Athens, Aristotle was not competent to meddle personally. His great and respected philosophical competitor, Xenokrates (a non-citizen or metic as well as he), was so far from being in a condition to meddle with public affairs, that he was once even arrested for not having paid in due season his *μετοίκιον*, or capitation-tax imposed upon metics. He was liberated, according to one story, by Lykurgus (Plutarch, Vit. x. Oratt. p. 842); according to another story (seemingly more probable), by Demetrius Phalereus (Diog. La. iv. 14). The anonymous life of Aristotle published by Robbe (Leyden, 1861, p. 3), takes due notice of Aristotle's position at Athens as a metic.

[b] Aristotle addressed to Themison a composition now lost, but well known in antiquity, called *Προτρεπτικός*. It was probably a dialogue; and was intended as an encouragement to the study of philosophy. See Rose, Aristot. Pseud. pp. 69-72, who gives a very interesting fragment of it out of Stobæus.

We have the titles of two lost works of Aristotle—*Περὶ Βασιλείας*, and *Ἀλέξανδρος, ἢ ὑπὲρ ἀποίκων* (or *ἀποικιῶν*). Both seem to have been dialogues. In one, or in both, he gave advice to Alexander respecting the manner of ruling his newly acquired empire in Asia; and respecting the relations proper to be established between Hellenes and native Asiatics (see Rose, Arist. Pseud. pp. 92-96; Bernays, Die Dialoge des Aristot. pp. 51-57).

pected decease of the great Macedonian conqueror, aged 32 years and 8 months, by a violent fever at Babylon. So vast was his power, and so unmeasured his ambition, that the sudden removal of such a man operated as a shock to the hopes and fears of almost every one, both in Greece and Asia. It produced an entire change in the position of Aristotle at Athens.

To understand what that position really was, we must look at it in connection with his Macedonian sympathies, and with the contemporaneous political sentiment at Athens. It was in the middle of the year 335 B.C., that Alexander put down by force the revolt of the Thebans, took their city by assault, demolished it altogether (leaving nothing but the citadel called Kadmeia, occupied by a Macedonian garrison), and divided its territory between two other Bœotian towns. Immediately after that terror-striking act, he demanded from the Athenians (who had sympathized warmly with Thebes, though without overt acts of assistance) the surrender of their principal anti-Macedonian politicians. That demand having been refused, he at first prepared to extort compliance at the point of the sword, but was persuaded, not without difficulty, to renounce such intention, and to be content with the voluntary exile of Ephialtes and Charidemus from Athens. Though the unanimous vote of the Grecian Synod at Corinth constituted him Imperator, there can be no doubt that the prevalent sentiment in Greece towards him was that of fear and dislike; especially among the Athenians, whose dignity was most deeply mortified, and to whom the restriction of free speech was the most painful.*

Now it was just at this moment (in 335 B.C.) that

* See History of Greece, chap. xci. pp. 18, 41, 64.

Aristotle came to Athens and opened his school. We cannot doubt that he was already known and esteemed as the author of various published writings. But the prominent mark by which every one now distinguished him, was, that he had been for several years confidential preceptor of Alexander, and was still more or less consulted by that prince, as well as sustained by the friendship of Antipater, viceroy of Macedonia during the king's absence. Aristotle was regarded as philo-Macedonian, and to a certain extent, anti-Hellenic—the sentiment expressed towards him in the unfriendly epigram of the contemporary Chian poet Theokritus.[a] His new school, originally opened under the protection and patronage of Alexander and Antipater, continued to be associated with their names, by that large proportion of Athenian citizens who held anti-Macedonian sentiments. Alexander caused the statue of Aristotle to be erected in Athens,[b] and sent to him continual presents of money, usefully employed by the philosopher in the prosecution of his physical and zoological researches,[c] as well as in the purchase of books. Moreover Aristotle remained in constant and friendly correspondence with Antipater, the resident viceroy at Pella,[d] during the absence of Alexander in

[a] Diog. L. v. 11.

Ἑρμίου εὐνούχου ἢ Εὐβούλου ἅμα δούλου
Σῆμα κενὸν κενόφρων τεῦξεν Ἀριστοτέλης·
Ὃς διὰ τὴν ἀκρατῆ γαστρὸς φύσιν εἵλετο ναίειν
Ἄστ' Ἀκαδημείας Βορβόρου ἐν προχοαῖς.

Cf. Plutarch, De Exilio, p. 603.

[b] Stahr, Aristotelia, vol. ii. p. 290.

[c] Athenæus, ix. 398; Pliny, H. N. viii. c. 16. Athenæus alludes to 800 talents as having been given by Alexander to Aristotle for this purpose. Pliny tells us that Alexander put thousands of men at his service for enquiry and investigation. The general fact is all that we can state with confidence, without pretending to verify amounts.

[d] Vit. Aristotelis, Leyden, 1861, Robbe, pp. 4-6; Aristokles ap. Eusebium Præp. Evang. xv. 2. Respecting the Epistles of Aristotle, and the collection thereof by Artemon, see Rose, Aristoteles Pseudepigr. pp. 594-598.

Asia. Letters of recommendation from Aristotle to the Macedonian rulers were often given and found useful: several of them were preserved and published afterwards. There is even reason to believe that the son of Antipater—Kassander, afterwards viceroy or king of Macedonia, was among his pupils.[a]

I have recounted elsewhere how the character of Alexander became gradually corrupted by unexampled success and Asiatic influences;[b] how he thus came to feel less affection and esteem for Aristotle, to whom he well knew that his newly acquired imperial and semi-divine pretensions were not likely to be acceptable; how, on occasion of the cruel sentence passed on Kallisthenes, he threatened even to punish Aristotle himself, as having recommended Kallisthenes, and as sympathizing with the same free spirit; lastly, how Alexander became more or less alienated, not only from the society of Hellenic citizens, but even from his faithful viceroy, the Macedonian Antipater. But these changed relations between Aristotle and Alexander did not come before the notice of the Athenians, nor alter the point of view in which they regarded the philosopher; the rather, since the relations of Aristotle with Antipater continued as intimate as ever.

It will thus appear, that though all the preserved

[a] We may infer this fact from the insulting reply made by Alexander, not long before his death, to Kassander, who had just then joined him for the first time at Babylon, having been sent by Antipater at the head of a reinforcement. Some recent comers from Greece complained to Alexander of having been ill-used by Antipater. Kassander being present at the complaint, endeavoured to justify his father and to invalidate their testimony, upon which Alexander silenced him by the remark that he was giving a specimen of sophistical duplicity learnt from Aristotle. *Ταῦτα ἐκεῖνα σοφίσματα τῶν Ἀριστοτέλους εἰς ἑκάτερον τῶν λόγων, οἷμωξομένων, ἂν καὶ μικρὸν ἀδικοῦντες τοὺς ἀνθρώπους φανῆτε* (Plutarch, Alex. 74).

[b] Histor. of Greece, ch. xciv. pp. 291, 301, 341; Plutarch, Alexand. c. lv.; Dion Chrysostom. Orat. 64, p. 338, Reiske.

writings of Aristotle are imbued with a thoroughly independent spirit of theorizing contemplation and lettered industry, uncorrupted by any servility or political bias—yet his position during the twelve years between 335–323 B.C. inevitably presented him to the Athenians as the macedonizing philosopher, parallel with Phokion as the macedonizing politician, and in pointed antithesis to Xenokrates at the Academy, who was attached to the democratical constitution, and refused kingly presents. Besides that enmity which he was sure to incur, as an acute and self-thinking philosopher, from theology and the other anti-philosophical veins in the minds of ordinary men, Aristotle thus became the object of unfriendly sentiment from many Athenian patriots,[a] who considered the school of Plato generally as hostile to popular liberty, and who had before their eyes examples of individual Platonists, ruling their respective cities with a sceptre forcibly usurped.[b]

Such sentiment was probably aggravated by the unparalleled and offensive Macedonian demonstration at the Olympic festival of 324 B.C. It was on that occa-

[a] The statement of Aristokles (ap. Eusebium. Præp. Ev. xv. 2.) is doubtless just—*φανερὸν οὖν, ὅτι καθάπερ πολλοῖς καὶ ἄλλοις, οὕτω καὶ Ἀριστοτέλει συνέβη, διά τε τὰς πρὸς τοὺς βασιλεῖς φιλίας καὶ διὰ τὴν ἐν τοῖς λόγοις ὑπεροχήν, ὑπὸ τῶν τότε σοφιστῶν φθονεῖσθαι.* The like is said by the rhetor Aristeides—Or. xii. p. 144, Dindorf.

I have already observed that the phrase of "Halbgrieche" applied by Bernays and W. v. Humboldt to Aristotle (Bernays, Die Dialoge des Aristoteles, p. 2, p. 134) is not accurate literally, unless we choose to treat all the Hellenic colonies as half-Greek. His ancestry was on both sides fully Hellenic. But it is true of him, in the same metaphorical sense in which it is true of Phokion. Aristotle was semi-Macedonian in his sympathies. He had no attachment to Hellas as an organized system autonomous, self-acting, with an Hellenic city as president: which attachment would have been considered, by Perikles, Archidamus, and Epameinondas, as one among the constituents indispensable to Hellenic patriotism.

[b] Quintilian—Declamat. 268. "Quis ignorat, ex ipsâ Socratis (quo velut fonte omnis philosophia manasse creditur) scholâ evasisse tyrannos et hostes patriæ suæ?" Compare Athenæus, xi. 508-509.

sion that Alexander, about one year prior to his decease, sent down a formal rescript, which was read publicly to the assembled crowd by a herald with loud voice; ordering every Grecian city to recall all exiles who had been banished by judicial sentence, and intimating, that if the rescript were not obeyed spontaneously, Antipater would be instructed to compel the execution of it by force. A large number of the exiles whose restitution was thus ordered, were present on the plain of Olympia, and heard the order proclaimed, doubtless with undisguised triumph and exultation. So much the keener must have been the disgust and humiliation among the other Grecian hearers, who saw the autonomy of each separate city violently trampled down, without even the pretence of enquiry, by this high-handed sentence of the Macedonian conqueror. Among the Athenians especially, the resentment felt was profound; and a vote was passed appointing deputies to visit Alexander in person, for the purpose of remonstrating against it. The orator Demosthenes, who happened to be named Archi-Theôrus of Athens (chief of the solemn legation sent to represent Athens) at this Olympic festival, incurred severe reproach from his accuser Deinarchus, for having even been seen in personal conversation with the Macedonian officer who had arrived from Asia as bearer of this odious rescript.*

* See the description of this event in History of Greece, ch. xcv. p. 416.

There is reason for supposing that Hypereides also (as well as Deinarchus) inveighed against Demosthenes for having publicly sought the company of Nikanor at this Olympic festival. At least we know that Hypereides, in his oration against Demosthenes, made express allusion to Nikanor. See Harpokration *v.* Νικάνωρ.

The exordium prefixed to the Pseud-Aristotelian Rhetorica ad Alexandrum, announces that discourse to have been composed pursuant to the desire of Alexander; and notices especially one message transmitted by him to Aristotle through Nikanor (p. 1420 a. 6, 1421 a. 26-38, καθάπερ ἡμῖν ἐδήλωσε Νικάνωρ, &c.).

Now it happened that this officer, the bearer of the rescript, was Nikanor of Stageira;[a] son of Proxenus who had been Aristotle's early guardian, and himself the cherished friend or ward, ultimately the son-in-law, of the philosopher. We may be certain that Aristotle would gladly embrace the opportunity of seeing again this attached friend, returning after a long absence on service in Asia; that he would be present with him at the Olympic festival, perhaps receive a visit from him at Athens also. And the unpopularity of Aristotle at Athens, as identified with Macedonian imperial authority, would thus be aggravated by his notorious personal alliance with his fellow-citizen Nikanor, the bearer of that rescript in which such authority had been most odiously manifested.

During the twelve or thirteen years[b] of Aristotle's

[a] Diodor. xviii. 8. *διόπερ ὑπαγόντων δὲ τῶν Ὀλυμπίων ἐξέπεμψεν* (Alexander) *εἰς τὴν Ἑλλάδα Νικάνορα τὸν Σταγειρίτην, δοὺς ἐπιστολὴν περὶ τῆς καθόδου.*

Antipater, when re-distributing the satrapies of the Macedonian empire, after the death both of Alexander and of Perdikkas, appointed Nikanor prefect or satrap of Kappadokia (Arrian, *Τὰ μετὰ Ἀλέξανδρον*, apud Photium, cod. 92, s. 37, Didot).

Ammonius, in the life of Aristotle, mentions Nikanor as son of Proxenus of Atarneus. Sextus Empiricus alludes to Nikanor as son-in-law of Aristotle (adv. Mathematicos, sect. 258, p. 271, Fabr.). See Ménage ad Diogen. Laert. v. 12. Robbe's Life of Aristotle also (Leyden, 1861, p. 2) mentions Nikanor as son of Proxenus.

Nikanor was appointed afterwards (in 318 B.C., five years later than the death of Aristotle) by Kassander, son of Antipater, to be commander of the Macedonian garrison which occupied Munychia, as a controlling force over Athens (Diodor. xviii. 64). It will be seen in my History of Greece (ch. xcvi. p. 458) that Kassander was at that moment playing a difficult game, his father Antipater being just dead; that he could only get possession of Munychia by artifice, and that it was important for him to entrust the mission to an officer who already had connections at Athens; that Nikanor, as adopted son of Aristotle, possessed probably beforehand acquaintance with Phokion and the other macedonizing leaders at Athens; so that the ready way in which Phokion now fell into co-operation with him is the more easily explained.

Nikanor, however, was put to death by Kassander himself, some months afterwards.

[b] There remain small fragments of an oration of Demades in defence

teaching and Alexander's reign, Athens was administered by macedonizing citizens, with Phokion and Demades at their head. Under such circumstances, the enmity of those who hated the imperial philosopher could not pass into act; nor was it within the contemplation of any one, that only one year after that rescript which insulted the great Pan-Hellenic festival, the illustrious conqueror who issued it would die of fever, in the vigour of his age and at the height of his power (June, 323 B.C.). But as soon as the news of his decease, coming by surprise both on friends and enemies, became confirmed, the suppressed anti-Macedonian sentiment burst forth in powerful tide, not merely at Athens, but also throughout other parts of Greece. There resulted that struggle against Antipater, known as the Lamian war:[a] a gallant struggle, at first promising well, but too soon put down by superior force, and ending in the occupation of Athens by Antipater with a Macedonian garrison in September, 322 B.C., as well as in the extinction of free speech and free citizenship by the suicide of Demosthenes and the execution of Hypereides.

During the year immediately succeeding the death of Alexander, the anti-Macedonian sentiment continued so vehemently preponderant at Athens, that several of the leading citizens, friends of Phokion, left the city to join Antipater, though Phokion himself remained, opposing ineffectually the movement. It was during this period that the enemies of Aristotle found a favourable

of his administration, or political activity, for twelve years—*ὑπὲρ τῆς δωδεκαετίας* (Demad. Fragm. 179, 32). The twelve years of Demades, however, seem to be counted from the battle of Chæroneia in 338 B.C.; so that they end in B.C. 326. See Clinton, Fast. Hellen. B.C. 326.

[a] For the account of the Lamian war, see History of Greece, ch. xcv. pp. 420-440. As to the anti-Macedonian sentiment prevalent at Athens, see Diodorus, xviii. 10.

opportunity for assailing him. An indictment on the score of impiety was preferred against him by Eurymedon the Hierophant (chief priest of the Eleusinian Demeter), aided by Demophilus, son of the historian Ephorus. The Hymn or Pæan (still existing), which Aristotle had composed in commemoration of the death, and in praise of the character, of the eunuch Hermeias,[a] was arraigned as a mark of impiety; besides which, Aristotle had erected at Delphi a statue of Hermeias with an honorific inscription, and was even alleged to have offered sacrifices to him as to a god. In the published writings of Aristotle, too, the accusers found various heretical doctrines, suitable for sustaining their indictment; as, for example, the declaration that prayer and sacrifices to the gods were of no avail.[b] But there can be little doubt that the Hymn, Ode, or Pæan, in honour of Hermeias, would be more offensive to the

[a] Diogen. L. v. 5; Athenæus, xv. 696. The name of Demophilus was mentioned by Favorinus as also subscribed to the indictment: this Demophilus was probably son of the historian Ephorus. See Val. Rose, Aristoteles Pseudepigraphus, p. 582. He took part afterwards in the indictment against Phokion. As an historian, he completed the narrative of the Sacred War, which his father Ephorus had left unfinished (Diodor. xvi. 14). The words of Athenæus, as far as I can understand them, seem to imply that he composed a speech for the Hierophant Eurymedon.

[b] See the passages from Origen advers. Celsum, cited in Stahr's Aristotelia, vol. i. p. 146.

Among the titles of the lost works of Aristotle (No. 14 in the Catalogue of Diogenes Laertius, No. 9 in that of the Anonymus; see Rose, Aristoteles Pseudepigraphus, pp. 12-18), one is Περὶ Εὐχῆς. From its position in the Catalogue, it seems plainly to have been a dialogue; and the dialogues were the most popular and best-known writings of Aristotle. Now we know from the Nikomach. Ethica (x. 8, 1178, b. 6-32) that Aristotle declared all constructive effort, and all action with a view to external ends, to be inconsistent with the Divine Nature, which was blest exclusively in theorizing and contemplation. If he advocated the same doctrine in the dialogue Περὶ Εὐχῆς, he must have contended that persons praying could have no additional chance of obtaining the benefits which they prayed for; and this would have placed him in conflict with the received opinions.

Respecting the dialogue Περὶ Εὐχῆς, see Bernays, Die Dialoge des Aristoteles, pp. 120-122; and Rose, Arist. Pseudepigr. pp. 67, 68.

feelings of an ordinary Athenian than any philosophical dogma extracted from the cautious prose compositions of Aristotle. It is a hymn, of noble thought and dignified measure, addressed to Virtue (Ἀρετή—masculine or military Virtue), in which are extolled the semi-divine or heroic persons who had fought, endured, and perished in her service. The name and exploits of Hermeias are here introduced as the closing parallel and example in a list beginning with Hêraklês, the Dioskûri, Achilles, and Ajax. Now the poet Kallistratus, in his memorable Skolion, offers a like compliment to Harmodius and Aristogeiton; and Pindar, to several free Greeks of noble family, who paid highly for his epinician Odes now remaining. But all the persons thus complimented were such as had gained prizes at the sacred festivals, or had distinguished themselves in other ways which the public were predisposed to honour; whereas Hermeias was a eunuch, who began by being a slave, and ended by becoming despot over a free Grecian community, without any exploit conspicuous to the eye. To many of the Athenian public it would seem insult, and even impiety, to couple Hermeias with the greatest personages of Hellenic mythology, as a successful competitor for heroic honours. We need only read the invective of Claudian against Eutropius, to appreciate the incredible bitterness of indignation and contempt, which was suggested by the spectacle of a eunuch and a slave exercising high public functions.* And the character of a despot was, to

* "Omnia cesserunt, eunucho consule, monstra:" this is among the bitter lines of Claudian, too numerous to cite; but they well deserve to be read in the original. Compare also, about the ancient sentiment towards eunuchs, Herodotus, viii. 106; Xenophon, Cyropæd. viii. 3, 15.

Apellikon thought it worth while to compose a special treatise, for the purpose of vindicating Aristotle from the aspersions circulated in regard to

the anti-macedonizing Athenians, hardly less odious than either of the two others combined with it in Hermeias.

Taking these particulars into account, we shall see that a charge thus sustained, when preferred by a venerable priest, during the prevalence of strong anti-Macedonian feeling, against a notorious friend of Antipater and Nikanor, was quite sufficient to alarm the prudence of the accused. Aristotle bowed to the storm (if indeed he had not already left Athens, along with other philo-Macedonians) and retired to Chalkis, (in Eubœa),[a] then under garrison by Antipater. An accused person at Athens had always the option of leaving the city, at any time before the day of trial; Sokrates might have retired, and obtained personal security in the same manner, if he had chosen to do so. Aristotle must have been served, of course, with due notice: and according to Athenian custom, the indictment would be brought into court in his absence, as if he had been present; various accusers, among them Demochares,[b] the nephew of Demosthenes, would probably

his relations with Hermeias. Aristokles speaks of the vindication as successful (ap. Euseb. P. E. xv. 2).

[a] That Chalkis was among the Grecian towns then occupied by a Macedonian garrison is the statement of Brandis (Entwickelungen der Griechischen Philosophie, i. p. 391, 1862). Though I find no direct authority for this statement, I adopt it as probable in the highest degree.

[b] Aristokles (ap. Eusebium Præp. Ev. xv. 2) takes notice of the allegations of Demochares against Aristotle: That letters of Aristotle had been detected or captured (ἁλῶναι), giving information injurious to Athens: That Aristotle had betrayed Stageira to Philip: That when Philip, after the capture of Olynthus, was selling into slavery the Olynthian prisoners, Aristotle was present at the auction (ἐπὶ τοῦ λαφυροπωλείου), and pointed out to him which among the prisoners were men of the largest property.

We do not know upon what foundation of fact (if upon any) these allegations were advanced by a contemporary orator. But they are curious, as illustrating the view taken of Aristotle by his enemies. They must have been delivered as parts of one of the accusatory speeches on Aristotle's trial *par contumace:* for this was the earliest occasion on which Aristotle's enemies had the opportunity of pub-

speak in support of it; and Aristotle must have been found guilty in his absence. But there is no ground for believing that he intended to abandon Athens, and live at Chalkis, permanently; the rather, inasmuch as he seems to have left not only his school, but his library, at Athens under the charge of Theophrastus. Aristotle knew that the Macedonian chiefs would not forego supremacy over Greece without a struggle; and, being in personal correspondence with Antipater himself, he would receive direct assurance of this resolution, if assurance were needed. In a question of military force, Aristotle probably felt satisfied that Macedonian arms must prevail; after which the affairs of Athens would be again administered, at least in the same spirit, as they had been before Alexander's death, if not with more complete servility. He would then have returned thither to resume his school, in competition with that of Plato under Xenokrates at the Academy; for he must have been well aware that the reputation of Athens, as central hearth of Hellenic letters and philosophy, could not be transferred to Chalkis or to any other city.[a]

licly proclaiming their antipathy against him, and they would hardly omit to avail themselves of it. The Hierophant, the principal accuser, would be supported by other speakers following him; just as Melêtus, the accuser of Sokrates, was supported by Anytus and Lykon. The *ἱστορίαι* of Democharès were not composed until seventeen years after this epoch—certainly not earlier than 306 B.C.—sixteen years after the death of Aristotle, when his character was not prominently before the public. Nevertheless Democharès may possibly have included these accusatory allegations against the philosopher in his *ἱστορίαι*, as well as in his published speech His invectives against Antipater, and the friends of Antipater, were numerous and bitter:—Polybius, xii. 13, 9; Cicero, Brutus, 83; compare Democharis Fragmenta, in Didot's Fragm. Historicorum Græcorum, vol. ii. p. 448. Philon, who indicted Sophokles (under the *γραφὴ παρανόμων*) for the law which the latter had proposed in 306 B.C. against the philosophers at Athens, had been a friend of Aristotle, *Ἀριστοτέλους γνώριμος*. Athenæus, xiii. 610.

[a] We may apply here the same remark that Dionysius makes about Deinarchus as a speech-maker: when

This is what would probably have occurred, when the Lamian war was finished and the Macedonian garrison installed at Athens, in Sept. 322 B.C.—had Aristotle's life lasted longer. But in or about that very period, a little before the death of Demosthenes, he died at Chalkis of illness; having for some time been troubled with indigestion and weakness of stomach.[a] The assertion of Eumêlus and others that he took poison, appears a mere fiction suggested by the analogy of Sokrates.[b] One of his latest compositions was a defence of himself against the charge of impiety, and against the allegations of his accusers (as reported to him, or published) in support of it. A sentence of this defence remains,[c] wherein he points out the inconsistency of his accusers in affirming that he intended to honour Hermeias as an immortal, while he had notoriously erected a tomb, and had celebrated funeral

Deinarchus retired to Chalkis, no one would send to Chalkis for a speech: *Οὐ γὰρ εἰς Χαλκίδα ἄν τινες ἔπλεον λόγων χάριν, ἢ ἰδίων, ἢ δημοσίων· οὐ γὰρ τέλεον ἠπόρουν οὕτω λόγων.* Dionys. Halic. Dinar. p. 639.

[a] Censorinus, De Die Natali—Ménage ad Diogen. Laert. v. 16.

[b] Diogenes L. however (v. 8) gave credit to this story, as we may see by his Epigram.

[c] Athenæus xv. p. 696, 697. Probably this reply of Aristotle (though Zeller, p. 33, declares it to be spurious, in my judgment very gratuitously), may have been suited to the words of the speech (not preserved to us) which it was intended to answer. But the reply does not meet what I conceive to have been the real feeling in the minds of those who originated the charge. The logical inconsistency which he points out did not appear an inconsistency to Greeks generally. Aristotle had rendered to the deceased Hermeias the same honours (though less magnificent in degree) as Alexander to the deceased Hephæstion, and the Amphipolitans to the deceased Brasidas (Thucyd. v. 11; Aristotel. Ethic. Nikom. v. 7. 1). In both these cases a tomb was erected to the deceased, implying mortality; and permanent sacrifices were offered to him, implying immortality: yet these two proceedings did not appear to involve any logical contradiction, in the eyes of the worshippers. That which offended the Athenians, really, in the case of Aristotle, was the worthlessness of Hermeias, to whom he rendered these prodigious honours—eunuch, slave, and despot; an assemblage of what they considered mean attributes. The solemn measure and character of a Pæan was disgraced by being applied to such a vile person.

ceremonies to him as a mortal. And in a letter to Antipater, he said (among other things) that Athens was a desirable residence, but that the prevalence of sycophancy or false accusation was a sad drawback to its value; moreover that he had retired to Chalkis, in order that the Athenians might not have the opportunity of sinning a second time against philosophy, as they had already done once, in the person of Sokrates.[a] In the same or another letter to Antipater, he adverted to an honorific tribute which had been voted to him at Delphi before the death of Alexander, but the vote for which had been since rescinded. He intimated that this disappointment was not indifferent to him, yet at the same time no serious annoyance.[b]

In regard to the person and habits of Aristotle, we are informed that he had thin legs and small eyes; that in speech he was somewhat lisping; that his attire

[a] Ammonius, Vit. Aristotelis, p. 48, in Buhle's Aristot. vol. i.; Ménage ad Diog. Laert. v. 5, with the passage from Origen (adv. Celsum) there cited; Ælian, V. H. iii. 36.

We learn from Diogenes that Theophrastus was indicted for impiety by Agnonides; but such was the esteem in which Theophrastus was held, that the indictment utterly failed; and Agnonides was very near incurring the fine which every accuser had to pay, if he did not obtain one-fifth of the suffrages of the Dikasts (Diog. L. v. 37). Now Agnonides comes forward principally as the vehement accuser of Phokion four years after the death of Aristotle, during the few months of democratical reaction brought about by the edicts and interference of Polysperchon (318 B.C.) after the death of Antipater (History of Greece, ch. xcvi. p. 477). Agnonides must have felt himself encouraged by what had happened five years before with Aristotle, to think that he would succeed in a similar charge against Theophrastus. But Theophrastus was personally esteemed; he was not intimately allied with Antipater, or directly protected by him; moreover, he had composed no hymn to a person like Hermeias. Accordingly, the indictment recoiled upon the accuser himself.

[b] Ælian, V. H. xiv. 1. Ἀριστοτέλης, ἐπεί τις αὐτοῦ ἀφείλετο τὰς ψηφισθείσας ἐν Δελφοῖς τιμάς, ἐπιστέλλων πρὸς Ἀντίπατρον περὶ τούτων, φησίν—Ὑπὲρ τῶν ἐν Δελφοῖς ψηφισθέντων μοι, καὶ ὧν ἀφῄρημαι νῦν, οὕτως ἔχω ὡς μήτε μοι σφόδρα μέλειν αὐτῶν, μήτε μοι μηδὲν μέλειν. The statue of Aristotle at Athens was before the eyes of Alexander of Aphrodisias about A.D. 200. See Zumpt, Scholarchen zu Athen, p. 74.

was elegant and even showy; that his table was well-served—according to his enemies, luxurious above the measure of philosophy. His pleasing and persuasive manners are especially attested by Antipater, in a letter, apparently of marked sympathy and esteem, written shortly after the philosopher's death.[a] He was deeply attached to his wife Pythias, by whom he had a daughter who bore the same name. His wife having died after some years, he then re-married with a woman of Stageira, named Herpyllis, who bore him a son called Nikomachus. Herpyllis lived with him until his death; and the constant as well as reciprocal attachment between them is attested by his last will.[b] At the time of his death, his daughter Pythias had not yet attained marriageable age; Nikomachus was probably a child.

The will or testament of the philosopher is preserved.[c]

[a] Plutarch—Alkibiad. et Coriolan. Comp. c. 3; Aristeid. cum Caton. maj. Comp. c. 2. The accusation of luxury and dainty feeding was urged against him by his contemporary assailant Kephisodorus (Eusebius, Pr. Ev. xv. 2); according to some statements, by Plato also, Ælian, V. H. iii. 19. Contrast the epigram of the contemporary poet Theokritus of Chios, who censures Aristotle *διὰ τὴν ἀκρατῆ γαστρὸς φύσιν*, with the satirical drama of the poet Lykophron (ap. Athenæum, ii. p. 55), in which he derided the suppers of philosophers, for their coarse and unattractive food: compare the verses of Antiphanes, ap. Athenæ. iii. p. 98 F.; and Diog. L. vii. 27; Timæus ap. Athenæum, viii. 342. The lines of Antiphanes ap. Athenæ. iv. 1346, seem to apply to Aristotle, notwithstanding Meineke's remarks, p. 59.

[b] Diog. L. v. 1, 13; Aristokles ap. Euseb. Pr. Ev. xv. 2.

[c] Diog. L. v. 11. *Ἔσται μεν εὐδίαν δέ τι συμβαίνῃ, τάδε διέθετο Ἀριστοτέλης· ἐπίτροπον μὲν εἶναι πάντων καὶ διὰ παντὸς Ἀντίπατρον*, &c. The testament of Aristotle was known to Hermippus (Athenæus, xiii. p. 589) about a century later than Aristotle, and the most ancient known authority respecting the facts of his life. Stahr (Aristotelia, vol. i. 159), and Brandis (Arist. p. 62) suppose that what Diogenes gives is only an extract from the will; since nothing is said about the library, and Aristotle would not omit to direct what should be done with a library which he so much valued. But to this I reply, that there was no necessity for his making any provision about the library; he had left it at Athens along with his school, in the care of Theophrastus. He wished it to remain there, and probably considered it as an appendage to the school; and it naturally would remain there, if

Its first words constitute Antipater his general executor in the most comprehensive terms,[a] words well calculated to ensure that his directions should be really carried into effect; since not only was Antipater now the supreme potentate, but Nikanor, the chief beneficiary under the will, was in his service and dependent on his orders. Aristotle then proceeds to declare that Nikanor shall become his son-in-law, by marriage with his daughter Pythias as soon as she shall attain suitable age; also, his general heir, subject to certain particular bequests and directions, and the guardian of his infant son Nikomachus. Nikanor being at that time on service, and perhaps in Asia, Aristotle directs that four friends (named Aristomenes, Timarchus, Hipparchus, Diotelês) shall take provisional care of Herpyllis, his two children, and his effects, until Nikanor can appear and act: Theophrastus is to be conjoined with these four if he chooses, and if circumstances permit him.[b]

he said nothing about it in his testament. We must remember (as I have already intimated) that when Aristotle left Athens, he only contemplated being absent for a time; and intended to come back and resume his school, when Macedonian supremacy should be re-established.

[a] Pausanias (vi. 4, 5) describes a statue of Aristotle which he saw at Olympia: the fact by which Aristotle was best known both to him and to the guides, seems to have been the friendship first of Alexander, next of Antipater.

[b] Diog. L. v. 12. *ἕως δ' ἂν Νικάνωρ καταλάβῃ, ἐπιμελεῖσθαι Ἀριστομένην, Τίμαρχον, Ἵππαρχον, Διοτέλην, Θεόφραστον, ἐὰν βούληται καὶ ἐνδέχηται αὐτῷ, τῶν τε παιδίων καὶ Ἑρπυλλίδος καὶ τῶν καταλελειμμένων.* The four persons here named were probably present at Chalkis, so that Aristotle could count upon them; but at the time when this will was made, Theophrastus was at Athens, conducting the Aristotelian school; and in the critical condition of Grecian politics, there was room for doubt how far he could securely or prudently act in this matter.

The words of Diogenes—*ἕως δ' ἂν Νικάνωρ καταλάβῃ*—are rendered in the improved translation of the edition by Firmin Didot, "*quoad vero Nicanor adolescat*," &c. I cannot think this a correct understanding, either of the words or of the fact. Nikanor was not a minor under age, but an officer on active service. The translation given by Ménage appears to me more true—"*tantisper dum redux sit Nicanor:*" (ad D. L. v. 12.)

The daughter Pythias, when she attains suitable age, is to become the wife of Nikanor, who will take the best care both of her and of Nikomachus, being in the joint relation of father and brother to them.[a] If Pythias shall die, either before the marriage or after it, but without leaving offspring, Nikanor shall have full discretion to make such arrangements as may be honourable both for himself and for the testator respecting Nikomachus and the estate generally. In case of the death of Nikanor himself, either before the marriage or without offspring, any directions given by him shall be observed; but Theophrastus shall be entitled, if he chooses, to become the husband of Pythias, and if Theophrastus does not choose, then the executors along with Antipater shall determine what they think best both for her and for Nikomachus.[b] The will then proceeds as follows:—"The executors (here Antipater is not called in to co-operate), with Nikanor, in faithful memory of me and of the steady affection of Herpyllis towards me, shall take good care of her in every way, but especially if she desires to be married, in giving her away to one not unworthy of me. They shall assign to her, besides what she has already received, a talent of silver, and three female slaves chosen by herself, out of the property, together with the young girl and the Pyrrhæan slave now attached to her person. If she prefers to reside at Chalkis, she may occupy the lodging near the garden; if at Stageira, she may live at my paternal house. Whichever of the two she may prefer, the

[a] Diog. L. v. 12. *ὡς καὶ πατὴρ ὢν καὶ ἀδελφός.*

[b] Diog. L. v. 13. In following the phraseology of this testament, we remark that when Aristotle makes allusion to these inauspicious possibilities—the death of Nikanor or of Pythias, he annexes to them a deprecatory phrase: *ἐὰν δὲ τῇ παιδὶ συμβῇ τι—ὃ μὴ γένοιτο οὐδὲ ἔσται,* &c.

executors shall provide it with all such articles of furniture as they deem sufficient for her comfort and dignity."[a]

Aristotle proceeds to direct that Nikanor shall make comfortable provision for several persons mentioned by name, male and female, most of them slaves, but one (Myrmex), seemingly, a free boarder or pupil, whose property he had undertaken to manage. Two or three of these slaves are ordered to be liberated, and to receive presents, as soon as his daughter Pythias shall be married. He strictly enjoins that not one of the youthful slaves who attended him shall be sold. They are to be brought up and kept in employment; when of mature age, they are to be liberated according as they shew themselves worthy.[b]

Aristotle had in his lifetime ordered, from a sculptor named Gryllion, busts of Nikanor and of the mother of Nikanor; he intended farther to order from the same sculptor a bust of Proxenus, Nikanor's father. Nikanor is instructed by the will to complete these orders, and to dedicate the busts properly when brought in. A bust of the mother of Aristotle is to be dedicated to Demeter at Nemea, or in any other place which Nikanor

[a] Diog. L. v. 14. *καὶ ἐὰν μὲν ἐν Χαλκίδι βούληται οἰκεῖν, τὸν ξενῶνα τὸν πρὸς τῷ κήπῳ· ἐὰν δὲ ἐν Σταγείροις, τὴν πατρῴαν οἰκίαν.* The "lodging near the garden" may probably have been the residence occupied by Aristotle himself, during his temporary residence at Chalkis. The mention of his paternal house, which he still possessed at Stageira, seems to imply that Philip, when he destroyed that town, respected the house therein which had belonged to his father's physician.

We find in the will of Theophrastus (Diog. L. v. 52) mention made of a property (*χωρίον*) at Stageira belonging to Theophrastus, which he bequeaths to Kallinus. Probably this is the same property which had once belonged to Aristotle; for I do not see how else Theophrastus (who was a native of Eresus in Lesbos) could have become possessed of property at Stageira.

[b] Diog. L. v. 15. *μὴ πωλεῖν δὲ τῶν παίδων μηδένα τῶν ἐμὲ θεραπευόντων, ἀλλὰ χρῆσθαι αὐτοῖς· ὅταν δ' ἐν ἡλικίᾳ γένωνται, ἐλευθέρους ἀφεῖναι κατ' ἀξίαν.*

may prefer; another bust of Arimnêstus (brother of Aristotle) is to be dedicated as a memento of the same, since he has died childless.[a]

During some past danger of Nikanor (we do not know what) Aristotle had made a vow of four marble animal figures, in case the danger were averted, to Zeus the Preserver and Athênê the Preserver. Nikanor is directed to fulfil this vow and to dedicate the figures in Stageira.[b]

Lastly, wherever Aristotle is buried, the bones of his deceased wife Pythias are to be collected and brought to the same spot, as she had commanded during her lifetime.[c]

This testament is interesting, as it illustrates the personal circumstances and sentiments of the philosopher, evincing an affectionate forethought and solicitude for those who were in domestic relations with him. As far as we can judge, the establishment and property which he left must have been an ample one.[d] How the provisions of the will were executed, or what became of most persons named in it, we do not know, except that Pythias the daughter of Aristotle was married three times: first, to Nikanor (according to the will); secondly, to Proklês, descendant of Demaratus (the

[a] Diog. L. v. 15.

[b] Diog. L. v. 16. *ἀναθεῖναι δὲ καὶ Νικάνορα σωθέντα, ἣν εὐχὴν ὑπὲρ αὐτοῦ ηὔξάμην, ζῷα λίθινα τετραπήχη Διὶ Σώτηρι καὶ Ἀθήνᾳ Σωτείρᾳ ἐν Σταγείροις.*

Here is a vow, made by Aristotle to the gods under some unknown previous emergency, which he orders his executor to fulfil. I presume that the last words of direction given by Sokrates before his death to Kriton were of the same nature: "We owe a cock to Æsculapius: pay the debt, and do not fail." (See my preceding work, Plato and the other Companions of Sokrates, vol. ii. ch. 23, p. 195.)

[c] Diog. L. v. 16.

[d] The elder Pliny (H. N. xxxv. 12, 46; compare also Diogen. L. v. 1, 16) mentions that in the sale of Aristotle's effects by his heirs there were included seventy dishes or pans (*patinas*, earthenware). Pliny considered this as a mark of luxurious living; since (according to Fenestella) "tripatinium appellabatur summa cœnarum lautitia."

king of Sparta formerly banished to Asia) by whom she had two sons, Proklês and Demaratus, afterwards pupils in the school of Theophrastus; thirdly, to a physician named Metrodôrus, by whom she had a son named Aristotle.[a]

There existed in antiquity several works, partly by contemporaries like the Megaric Eubulides, partly by subsequent Platonists, in which Aristotle was reproached with ingratitude to Plato,[b] servility to the Macedonian power, love of costly display and indulgences, &c. What proportion of truth may lie at the bottom of these charges we do not know enough to determine confidently; but we know that he had many enemies, philosophical as well as political;[c] and controversy on those grounds (then as now) was rarely kept free from personal slander and invective.

The accusation of ingratitude or unbecoming behaviour to Plato is no way proved by any evidence now remaining. It seems to have been suggested to the Platonists mainly, if not wholly, by the direct

[a] Sextus Empiric. adv. Mathematicos, i. p. 271 F. sect. 258. About the banishment, or rather voluntary exile, of Demaratus to Asia, in the reign of Darius I. king of Persia, see Herodot. vi. 70. Some towns and lands were assigned to him in Æolis, where Xenophon found his descendant Prokles settled, after the conclusion of the Cyreian expedition (Xen. Anab. vii. 8, 17).

Respecting this younger Aristotle—son of Metrodorus and grandson of the great philosopher—mention is made in the testament of Theophrastus, and directions are given for promoting his improvement in philosophy (Diog. La. v. 53). Nikomachus was brought up chiefly by Theophrastus, but perished young in battle (Aristokles ap. Euseb. Præp. Ev. xv. 2).

[b] Euseb. Præp. Ev. xv. 2; Diog. La. ii. 109.

[c] The remarkable passage of Themistius (Orat. xxiii. p. 346) attests the number and vehemence of these opponents. *Κηφισοδώρους τε καὶ Εὐβουλίδας καὶ Τιμαίους καὶ Δικαιάρχους, καὶ στράτον ὅλον τῶν ἐπιθεμένων Ἀριστοτέλει τῷ Σταγειρίτῃ, πόρ' ἂν καταλέξαιμι εὐπετῶς, ἂν καὶ λόγοι ἐξικνοῦνται εἰς τόνδε τὸν χρόνον, διατηροῦντες τὴν ἀπέχθειαν καὶ φιλονεικίαν*;

rivalry of Aristotle in setting up a second philosophical school at Athens, alongside of the Academy; by his independent, self-working, philosophical speculation; and by the often-repeated opposition which he made to some capital doctrines of Plato, especially to the so-called Platonic Ideas.* Such opposition was indeed expressed, as far as we can judge, in terms of respectful courtesy, and sometimes even of affectionate regret; examples of which we shall have to notice in going through the Aristotelian writings. Yet some Platonists seem to have thought that direct attack on the master's doctrines was undutiful and ungrateful in the pupil, however unexceptionable the language might be. They also thought, probably, that the critic misrepresented what he sought to refute. Whether Aristotle really believed that he had superior claims to be made Scholarch of the Platonic school at the death of Plato in 347 B.C., or at the death of Speusippus in 339 B.C., is a point which we can neither affirm nor deny. But we can easily understand that the act of setting up a new philosophical school at Athens, though perfectly fair and admissible on his part, was an hostile competition sure both to damage and offend the pre-established school, and likely enough to be resented with unbecoming aspe-

* This is what lies at the bottom of the charges advanced by Eubulides, probably derived from the Platonists, *καὶ Εὐβουλίδης προδήλως ἐν τῷ κατ' αὐτοῦ βιβλίῳ ψεύδεται, φάσκων, τελευτῶντι Πλάτωνι μὴ παραγενέσθαι, τά τε βίβλια αὐτοῦ διαφθεῖραι* (Aristokles ap. Euseb. Præp. Ev. xv. 2). There can be no possible basis for this last charge—destroying or corrupting the books of Plato—except that Aristotle had sharply criticized them, and was supposed to have mis-stated or unfairly discredited them.

The frequently recurring protest of Aristotle against the Platonic doctrine of Ideas may be read now in the Analytica, Topica, Metaphysica, and Ethica Nikomachea, but was introduced even in the lost Dialogues. See Plutarch adv. Kolôten, c. 14; and Proklus adv. Joann. Philoponum ap. Bernays, Die Dialoge des Aristoteles, not. 22, p. 151.

rity. Ingratitude towards the great common master Plato, with arrogant claims of superiority over fellow-pupils, were the allegations which this resentment would suggest, and which many Platonists in the Academy would not scruple to advance against their macedonizing rival at the Lykeium.

Such allegations moreover would find easy credence from other men of letters, whose enmity Aristotle had incurred, and to a certain extent even provoked—Isokrates and his numerous disciples.

This celebrated rhetor was an elderly man at the zenith of his glory and influence, during those earlier years which Aristotle passed at Athens before the decease of Plato. The Isokratean school was then the first in Greece, frequented by the most promising pupils from cities near and far, perhaps even by Aristotle himself. The political views and handling, as well as the rhetorical style of which the master set the example, found many imitators. Illustrious statesmen, speakers, and writers traced their improvement to this teaching. So many of the pupils, indeed, acquired celebrity—among them Theodektês, Theopompus, Ephorus, Naukrates, Philiskus, Kephisodôrus, and others—that Hermippus[a]

[a] Athenæus, x. p. 451; Dionys. Hal., De Isæo Judic. pp. 588, 625. *οὐδὲ γὰρ ὁ τοὺς Ἰσοκράτους μαθητὰς ἀναγράψας Ἕρμιππος, ἀκριβὴς ἐν τοῖς ἄλλοις γενόμενος, ὑπὲρ τοῦδε τοῦ ῥήτορος οὐδὲν εἴρηκεν, ἔξω δυοῖν τούτοιν, ὅτι διήκουσε μὲν Ἰσοκράτους, καθηγήσατο δὲ Δημοσθένους, συνεγένετο δὲ τοῖς ἀρίστοις τῶν φιλοσόφων.* See Hermippi Fragmenta ed. Lozinski, Bonn, 1832, pp. 42-43.

Cicero, De Oratore, ii. 22, 94. "Ecce tibi exortus est Isocrates, magister istorum omnium, cujus è ludo, tanquam ex equo Trojano, meri principes exierunt: sed eorum partim in pompâ, partim in acie, illustres esse voluerunt. Atqui et illi—Theopompi, Ephori, Philiski, Naucratæ, multique alii—ingeniis differunt," &c. Compare also Cicero, Brutus, 8, 32; and Dionys. Hal., De Isocrate Judicium, p. 536. *ἐπιφανέστατος δὲ γενόμενος τῶν κατὰ τὸν αὐτὸν ἀκμασάντων χρόνον, καὶ τοὺς κρατίστους τῶν ἐν Ἀθήναις τε καὶ ἐν τῇ ἄλλῃ Ἑλλάδι νέων παιδεύσας· ὧν οἱ μὲν ἐν τοῖς δικανικοῖς ἐγένοντο ἄριστοι λόγοις, οἱ δ' ἐν τῷ πολιτεύεσθαι καὶ τὰ κοινὰ πράττειν διήνεγκαν, καὶ ἄλλοι δὲ τὰς*

thought it worth his while to draw up a catalogue of them: many must have been persons of opulent family, highly valuing the benefit received from Isokrates, since each of them was required to pay to him a fee of 1000 drachmæ.[a] During the first sojourn of Aristotle in Athens (362–347 B.C.), while he was still attached to and receiving instruction from Plato, he appears to have devoted himself more to rhetoric than to philosophy, and even to have given public lessons or lectures on rhetoric. He thus entered into rivalry with Isokrates, for whom, as a teacher and author, he contracted dislike or contempt.

The composition of Isokrates was extremely elegant: his structure of sentences was elaborate even to excess, his arrangement of words rhythmical, his phrases nicely balanced in antithetical equipoise, like those of his master Gorgias; the recital of his discourses proved highly captivating to the ear.[b] Moreover, he had com-

κοινὰς τῶν Ἑλλήνων τε καὶ βαρβάρων πράξεις ἀνέγραψαν, &c.

[a] See Demosthenes, adv. Lakritum, pp. 928, 938. Lakritus was a citizen of Phasêlis—*μέγα πρᾶγμα, Ἰσοκράτους μαθητής*. To have gone through a course of teaching from Isokrates, was evidently considered as a distinction of some importance.

[b] Dionysius, while admiring Isokrates, complains of him, and complains still more of his imitators, as somewhat monotonous, wanting in flexibility and variety (De Compos. Verborum, p. 134). Yet he pronounces Isokrates and Lysias to be more natural, shewing less of craft and art than Isæus and Demosthenes (De Isæo Judicium, p. 592). Isokrates *τὸν ὄγκον τῆς ποιητικῆς κατασκευῆς ἐπὶ λόγους ἤγαγε φιλοσόφους, ζηλώσας τοὺς περὶ Γοργίαν*. (Dionys. Hal. ad Pompeium de Platone, p. 764; also De Isæo Judicium, p. 592; besides the special chapter, p. 534, seq., which he has devoted to Isokrates.)

Cicero, De Oratore, iii. 44, 173: "Idque princeps Isocrates instituisse fertur, ut inconditam antiquorum dicendi consuetudinem delectationis atque aurium causâ, quemadmodum scribit discipulus ejus Naucrates, numeris adstringeret." Compare Cicero, Orator. 52, 175-176.

The reference to Naucrates (whose works have not been preserved, though Dionysius commends his *Λόγος Ἐπιτάφιος*, Ars. Rhet. p. 259) is interesting, as it shews what was said of Isokrates by his own disciples. Cicero says of the doctrines in his own dialogue De Oratore (Epist. ad Famil. i. 9, 23), "Abhorrent a communibus præceptis, et omnem antiquorum, et

posed a book of rhetorical precepts known and esteemed by Cicero and Quintilian. Besides such technical excellence, Isokrates strove to attain, and to a certain extent actually attained, a higher order of merit. He familiarized his pupils with thoughts and arguments of lofty bearing and comprehensive interest; not assisting them to gain victory either in any real issue tried before the Dikasts, or in any express motion about to be voted on by the public assembly, but predisposing their minds to prize above all things the great Panhellenic aggregate—its independence in regard to external force, and internal harmony among its constituent cities, with a reasonable recognition of presidential authority, equitably divided between Athens and Sparta, and exercised with moderation by both. He inculcated sober habits and deference to legal authority on the part of the democrats of Athens; he impressed upon princes, like Philip and Nikokles, the importance of just and mild bearing towards subjects.[a] Such is the general strain of the discourses which we now possess from Isokrates; though he appears to have adopted it only in middle life, having begun at first in the more usual track of the logographer—composing speeches to be delivered before the Dikastery by actual plaintiffs or defendants,[b] and acquiring thus both reputation and

Aristoteleam et Isocrateam, rationem oratoriam complectuntur." About the Τέχνη of Isokrates, see Spengel, Συναγωγὴ Τεχνῶν (Munich) pp. 155-170.

[a] Dionysius Hal. dwells emphatically on the lofty morality inculcated in the discourses of Isokrates, and recommends them as most improving study to all politicians (De Isocrate Judic. pp. 536, 544, 555, seq.)—more improving than the writers purely theoretical, among whom he probably numbered Plato and Aristotle.

[b] Dionysius Hal. De Isocrate Judicium, pp. 576, 577, Reiske: δίσμας πάνυ πολλὰς δικανικῶν λόγων Ἰσοκρατείων περιφέρεσθαί φησιν ὑπὸ τῶν βιβλιοπωλῶν Ἀριστοτέλης. It appears that Aphareus, the adopted son of Isokrates, denied that Isokrates had ever written any judicial orations; while Kephisodôrus, the disciple of Isokrates, in his reply to Aristotle's

profit. His reputation as a teacher was not only maintained but even increased when he altered his style; and he made himself peculiarly attractive to foreign pupils who desired to acquire a command of graceful expressions, without special reference to the Athenian Assembly and Dikastery. But his new style being midway between Demosthenes and Plato—between the practical advocate and politician on one side, and the generalizing or speculative philosopher on the other—he incurred as a semi-philosopher, professing to have discovered the *juste milieu*, more or less of disparagement from both extremes;* and Aristotle, while yet a young man in the Platonic school, raised an ardent controversy against his works, on the ground both of composition and teaching. Though the whole controversy is now lost, there is good ground for believing that Aristotle must have displayed no small acrimony. He appears to have impugned the Isokratean discourses, partly as containing improper dogmas, partly as specimens of mere unimpressive elegance, intended for show, pomp, and immediate admiration from the hearer—*ad implendas aures*—

accusations, admitted that Isokrates had composed a few, but only a few. Dionysius accepts the allegation of Kephisodôrus, and discredits that of Aristotle: I, for my part, believe the allegation of Aristotle, upon a matter of fact which he had the means of knowing. Cicero also affirms (Brutus, xii. 46-48), on the authority of Aristotle, that Isokrates distinguished himself at first as a composer of speeches intended to be delivered by actual pleaders in the Dikastery or Ekklesia; and that he afterwards altered his style. And this is what Aristotle says (respecting Isokrates) in Rhetoric. i. 9, 1368, a. 20, *ὅπερ Ἰσοκράτης ἐποίει διὰ τὴν συνήθειαν τοῦ δικολογεῖν*, where Bekker has altered the substantive to *τὴν ἀσυνήθειαν*; in my judgment, not wisely. I do not perceive the meaning or pertinence of *ἀσυνήθειαν* in that sentence.

* See Plato, Euthydemus, p. 305; also 'Plato and the Other Companions of Sokrates,' vol. i. ch. xix. pp. 557-563.

It is exactly this *juste milieu* which Dionysius Hal. extols as the most worthy of being followed, as being *ἡ ἀληθινὴ φιλοσοφία*. De Isocrate Jud. pp. 543, 558.

but destitute both of comprehensive theory and of applicability to any useful purpose.[a] Kephisodôrus, an

[a] Cicero, De Oratore, iii. 35, 141. "Itaque ipse Aristoteles quum florere Isocratem nobilitate discipulorum videret, quod ipse suas disputationes a causis forensibus et civilibus ad inanem sermonis elegantiam transtulisset, mutavit repente totam formam prope disciplinæ suæ, versumque quendam Philoctetæ paulo secus dixit. Ille enim 'turpe sibi ait esse tacere, quum barbaros'—hic autem, 'quum Isocratem'—'pateretur dicere.'" See Quintilian, Inst. Or. iv. 2, 196; and Cicero, Orator. 19, 62: "Aristoteles Isocratem ipsum lacessivit." Also, ib. 51, 172: "Omitto Isocratem discipulosque ejus Ephorum et Naucratem; quanquam orationis faciendæ et ornandæ auctores locupletissimi summi ipsi oratores esse debebant. Sed quis omnium doctior, quis acutior, quis in rebus vel inveniendis vel judicandis acrior Aristotele fuit? *Quis porro Isocrati adversatus est infensius?*" That Aristotle was the first to assail Isokrates, and that Kephisodôrus wrote only in reply, is expressly stated by Numenius, ap. Euseb. Pr. Ev. xiv. 6: ὁ Κηφισόδωρος, ἐπειδὴ ὑπ' Ἀριστοτέλους βαλλόμενον ἑαυτῷ τὸν διδάσκαλον Ἰσοκράτην ἑώρα, &c. Quintilian also says, Inst. Or. iii. 1, p. 126: "Nam et Isocratis præstantissimi discipuli fuerunt in omni studiorum genere; eoque jam seniore (octavum enim et nonagesimum implevit annum) pomeridianis scholis Aristoteles præcipere artem oratoriam cœpit; noto quidem illo (ut traditur) versu ex Philoctetâ *frequenter usus*: Αἰσχρὸν σιωπᾷν μέν, καὶ Ἰσοκράτην ἐᾶν λέγειν."

Diogenes La. (v. 3) maintains that Aristotle turned the parody not against *Isokrates*, but against *Xenokrates*: Αἰσχρὸν σιωπᾷν, Ξενοκράτην δ' ἐᾶν λέγειν. But the authority of Cicero and Quintilian is decidedly preferable. When we recollect that the parody was employed by a young man, as yet little known, against a teacher advanced in age, and greatly frequented as well as admired by pupils, it will appear sufficiently offensive. Moreover, it does not seem at all pertinent; for the defects of Isokrates, however great they may have been, were not those of analogy with βάρβαροι, but the direct reverse. Dionysius must have been forcibly struck with the bitter *animus* displayed by Aristotle against Isokrates, when he makes it a reason for rejecting the explicit averment of Aristotle as to a matter of fact: καὶ οὔτ' Ἀριστοτέλει πείθομαι ῥυπαίνειν τὸν ἄνδρα βουλομένῳ (De Isocr. Jud. p. 577).

Mr. Cope, in his Introduction to Aristotle's Rhetoric (p. 39, seq.), gives a just representation of the probable relations between Aristotle and Isokrates; though I do not concur in the unfavourable opinion which he expresses about "the malignant influence exercised by Isokrates upon education in general" (p. 40). Mr. Cope at the same time remarks, that "Aristotle in the Rhetorica draws a greater number of illustrations of excellences of style from Isokrates than from any other author" (p. 41); and he adds, very truly, that the absence of any evidence of ill feeling towards Isokrates in Aristotle's later work, and the existence of such ill feeling as an actual fact at an earlier period, are perfectly reconcileable in themselves (p. 42).

That the Rhetorica of Aristotle which we now possess is a work of his later age, certainly published, per-

intimate friend and pupil of Isokrates, defended him in an express reply, attacking both Aristotle the scholar and Plato the master. This reply was in four books, and Dionysius characterizes it by an epithet of the highest praise.[a]

These polemics of Aristotle were begun during his first residence at Athens, prior to 347 B.C., the year of Plato's decease, and at the time when he was still accounted a member of the Platonic school. They exemplify the rivalry between that school and the Isokratean, which were then the two competing places of education at Athens: and we learn that Aristotle, at that time only a half-fledged Platonist, opened on his own account not a new philosophical school in competition with Plato, as some state, but a new rhetorical school in opposition to Isokrates.[b] But the case was different at the latter epoch, 335 B.C., when Aristotle came to reside at Athens for the second time. Isokrates was then dead, leaving no successor, so that his rhetorical school expired with him. Aristotle

haps composed, during his second residence at Athens, I hold with Mr. Cope and other antecedent critics.

[a] Athenæus, ii. 60, iii. 122; Euseb. Pr. E. xiv. 6; Dionys. H. De Isocrate Judic. p. 577: *ἱκανὸν ἡγησάμενος εἶναι τῆς ἀληθείας βεβαιωτὴν τὸν Ἀθηναῖον Κηφισόδωρον, ὃς καὶ συνεβίωσεν Ἰσοκράτει, καὶ γνησιώτατος ἀκουστὴς ἐγένετο, καὶ τὴν ἀπολογίαν τὴν πάνυ θαυμαστὴν ἐν ταῖς πρὸς Ἀριστοτέλη ἀντιγραφαῖς ἐποιήσατο*, &c. Kephisodôrus, in this defence, contended that you might pick out, even from the very best poets and sophists, *ἓν ἢ δύο πονηρῶς εἰρημένα*. This implies that Aristotle, in attacking Isokrates, had cited various extracts which he denounced as exceptionable.

[b] That Aristotle had a school at Athens before the death of Plato we may see by what Strabo (xiii. 610) says about Hermeias: *γενόμενος δ' Ἀθήνησιν ἠκροάσατο καὶ Πλάτωνος καὶ Ἀριστοτέλους*. Compare Cicero, Orator. 46; also Michelet, Essai sur la Métaphys. d'Aristote, p. 227. The statement, that Aristotle during Plato's lifetime tried to set up a rival school against him, is repeated by all the biographers, who do not however believe it to be true, though they cite Aristoxenus as its warrant. I conceive that they have mistaken what Aristoxenus said; and that they have confounded the school which Aristotle first set up as a rhetor, against Isokrates, with that which he afterwards set up as a philosopher, against Xenokrates.

preferred philosophy to rhetoric: he was no longer trammelled by the living presence and authority of Plato. The Platonic school at the Academy stood at that time alone, under Xenokrates, who, though an earnest and dignified philosopher, was deficient in grace and in persuasiveness, and had been criticized for this defect even by Plato himself. Aristotle possessed those gifts in large measure, as we know from the testimony of Antipater. By these circumstances, coupled with his own established reputation and well-grounded self-esteem, he was encouraged to commence a new philosophical school; a school, in which philosophy formed the express subject of the morning lecture, while rhetoric was included as one among the subjects of more varied and popular instruction given in the afternoon.* During the twelve ensuing years, Aristotle's rivalry was mainly against the Platonists or Xenokrateans at the Academy; embittered on both sides by acrimonious feelings, which these expressed by complaining of his ingratitude and unfairness towards the common master, Plato.

There were thus, at Athens, three distinct parties inspired with unfriendly sentiment towards Aristotle: first, the Isokrateans; afterwards, the Platonists; along with both, the anti-Macedonian politicians. Hence we can account for what Themistius entitles the "army of assailants" (*στράτον ὅλον*) that fastened upon him, for the unfavourable colouring with which his domestic circumstances are presented, and for the necessity under which he lay of Macedonian protection; so that when such protection was nullified, giving place to a reactionary fervour, his residence at Athens became both disagreeable and insecure.

* Aulus Gellius, N. A. xx. 5. Quintilian (see note on p. 35) puts the rhetorical "pomeridianæ scholæ" within the lifetime of Isokrates; but Aristotle did not then lecture on philosophy in the morning.

CHAPTER II.

ARISTOTELIAN CANON.

IN the fourth and fifth chapters of my work on 'Plato and the Other Companions of Sokrates,' I investigated the question of the Platonic Canon, and attempted to determine, upon the best grounds open to us, the question, What are the real works of Plato? I now propose to discuss the like question respecting Aristotle.

But the premisses for such a discussion are much less simple in regard to Aristotle than in regard to Plato. As far as the testimony of antiquity goes, we learn that the Canon of Thrasyllus, dating at least from the time of the Byzantine Aristophanes, and probably from an earlier time, was believed by all readers to contain the authentic works of Plato and none others; an assemblage of dialogues, some unfinished, but each undivided and unbroken. The only exception to unanimity in regard to the Platonic Canon, applies to ten dialogues, which were received by some (we do not know by how many, or by whom) as Platonic, but which, as Diogenes informs us, were rejected by agreement of the most known and competent critics. This is as near to unanimity as can be expected. The doubts, now so multiplied, respecting the authenticity of various dialogues included in the Canon of Thrasyllus, have all originated with modern scholars since the beginning of the present century, or at least since the earlier compositions of Wyttenbach. It was my task to ap-

preciate the value of those doubts; and, in declining to be guided by them, I was at least able to consider myself as adhering to the views of all known ancient critics.

Very different is the case when we attempt to frame an Aristotelian Canon, comprising all the works of Aristotle and none others. We find the problem far more complicated, and the matters of evidence at once more defective, more uncertain, and more contradictory.

The different works now remaining, and published in the Berlin edition of Aristotle, are forty-six in number. But, among these, several were disallowed or suspected even by some ancient critics, while modern critics have extended the like judgment yet farther. Of several others again, the component sections (either the *books*, in our present phraseology, or portions thereof) appear to have existed once as detached rolls, to have become disjointed or even to have parted company, and to have been re-arranged or put together into aggregates, according to the judgment of critics and librarians. Examples of such doubtful aggregates, or doubtful arrangements, will appear when we review the separate Aristotelian compositions (the Metaphysica, Politica, &c.). It is, however, by one or more of these forty-six titles that Aristotle is known to modern students, and was known to mediæval students.

But the case was very different with ancient *literati*, such as Eratosthenes, Polybius, Cicero, Strabo, Plutarch, &c., down to the time of Alexander of Aphrodisias, Athenæus, Diogenes Laertius, &c., towards the close of the second century after the Christian era. It is certain that these ancients perused many works of Aristotle, or generally recognized as his, which we do not now possess; and among those which we do now possess,

there are many which it is not certain that they perused, or even knew.

Diogenes Laertius, after affirming generally that Aristotle had composed a prodigious number of books, (*πάμπλειστα βίβλια*) proceeds to say, that, in consequence of the excellence of the author in every variety of composition, he thinks it proper to indicate them briefly.[a] He then enumerates one hundred and forty-six distinct titles of works, with the number of books or sections contained in each work. The subjects are exceedingly heterogeneous, and the form of composition likewise very different; those which come first in the list being Dialogues,[b] while those which come last are Epistles, Hexameters, and Elegies. At the close of the list we read: "All of them together are 445,270 lines, and this is the number of books (works) composed by Aristotle."[c] A little farther on, Diogenes adds, as an evidence of the extraordinary diligence and inventive force of Aristotle, that the books (works) enumerated in the preceding list were nearly four hundred in number, and that these were not contested by any one; but that there were many other writings, and *dicta* besides, ascribed to Aristotle—ascribed (we must

[a] Diog. La. v. 21. *Συνέγραψε δὲ πάμπλειστα βίβλια, ἅπερ ἀκόλουθον ἡγησάμην ὑπογράψαι, διὰ τὴν περὶ πάντας λόγους τἀνδρὸς ἀρετήν.*

[b] Bernays has pointed out (in his valuable treatise, Die Dialoge des Aristoteles, p. 133) that the first in order, nineteen in number, among the titles enumerated by Diogenes, designate Dialogues. The longest of them, those which included more than one book or section, are enumerated first of all. Some of the dialogues appear to have coincided, either in title or in subject, with some of the Platonic:—**Περὶ Δικαιοσύνης**, in four books (comparable with Plato's Republic); **Πολιτικοῦ**, in two books; **Σοφιστὴς, Μενέξενος, Συμπόσιον**, each in one book; all similar in title to works of Plato; perhaps also another, **Περὶ ῥητορικῆς ἢ Γρύλλος**, the analogue of Plato's Gorgias.

[c] Diog. La. v. 27. *γίνονται αἱ πᾶσαι μυριάδες στίχων τέτταρες καὶ τετταράκοντα πρὸς τοῖς πεντακισχιλίοις καὶ διακοσίοις ἑβδομήκοντα. Καὶ τοσαῦτα μὲν αὐτῷ πεπραγμάτευται βίβλια.*

understand him to mean) erroneously, or at least so as to leave much doubt.[a]

We have another distinct enumeration of the titles of Aristotle's works, prepared by an anonymous biographer cited in the notes of Ménage to Diogenes Laertius.[b] This anonymous list contains only one hundred and twenty-seven titles, being nineteen less than the list in Diogenes. The greater number of titles are the same in both; but Anonymus has eight titles which are not found in Diogenes, while Diogenes has twenty-seven titles which are not given by Anonymus. There are therefore thirty-five titles which rest on the evidence of one alone out of the two lists. Anonymus does not specify any total number of lines; nevertheless he gives the total number of *books* composed by Aristotle as being nearly four hundred—the same as Diogenes. This total number cannot be elicited out of the items enumerated by Anonymus; but it may be made to coincide pretty nearly with the items in Diogenes,[c]

[a] Diog. La. v. 34. Heitz (Die Verlorenen Schriften des Aristoteles, p. 17) notices, as a fact invalidating the trustworthiness of the catalogue given by Diogenes, that Diogenes, in other places, alludes to Aristotelian compositions which are not mentioned in his own catalogue. For example, though Diogenes, in the catalogue, allows only five books to the Ethica, yet he himself alludes (v. 21) to the seventh book of the Ethica. But this example can hardly be relied upon, because *ἐν τῷ ἑβδόμῳ τῶν ἠθικῶν* is only a conjecture of H. Stephens or Ménage. The only case which Heitz really finds to sustain his remark, is the passage of the Prœmium (i. 8), where Diogenes cites Aristotle *ἐν τῷ Μαγικῷ*, that work not being named in his catalogue. But there is another case (not noticed by Heitz) which appears to me still stronger. Diogenes cites at length the Hymn or Pæan composed by Aristotle in honour of Hermeias. Now there is no general head of his catalogue under which this hymn could fall. Here Anonymus (to be presently mentioned) has a superiority over Diogenes; for he introduces, towards the close of his catalogue, one general head—*ἐγκώμια ἢ ὕμνους*, which is not to be found in Diogenes.

[b] Ménage ad Diog. tom. ii. p. 201. See the very instructive treatise of Professor Heitz, Die Verlorenen Schriften des Aristoteles, p. 15 (Leipzig, 1865).

[c] Heitz, Die Verl. Schrift. des Ari-

provided we understand by *books*, sections or subdivisions of one and the same title or work.

The two catalogues just mentioned, agreeing as they do in the total number of books and in the greater part of the items, may probably be considered not as original and copy, but as inaccurate transcripts from the same original authority. Yet neither of the two transcribers tells us what that original authority was. We may, however, be certain that each of them considered his catalogue to comprehend all that Aristotle could be affirmed on good authority to have published; Diogenes plainly signifies thus much, when he gives not only the total number of books, but the total number of lines. Such being the case, we expect to find in it, of course, the titles of the forty-six works composing the Berlin edition of Aristotle now before us. But this expectation is disappointed. The far greater number of the Aristotelian works which we now peruse are not specified either in the list of Diogenes, or in that of Anonymus.[a] Moreover, the lists also fail to specify the titles of various works which are not now extant, but which we know from Aristotle himself that he really composed.[b]

The last-mentioned fact is in itself sufficiently strange and difficult to explain, and our difficulty becomes

stot. p. 51. Such coincidence assumes that we reckon the Πολιτεῖαι and the Epistles each as one book.

I think it unnecessary to transcribe these catalogues of the titles of works mostly lost. The reader will find them clearly printed in the learned work of Val. Rose, Aristoteles Pseudepigraphus, pp. 12-20.

[a] Heitz, Verl. Schr. Aristot. p. 18, remarks that "In diesem Verzeichnisse (that of Diogenes) die bei weitem grösste Zahl derjenigen Schriften fehlt, welche wir heute noch besitzen, und die wir als den eigentlichen Kern der aristotelischen Lehre enthaltend zu betrachten gewohnt sind." Cf. p. 32. Brandis expresses himself substantially to the same effect (Aristoteles, Berlin, 1853, pp. 77, 78, 96); and Zeller also (Gesch. der Phil. 2nd ed. Aristot. Schriften, p. 43).

[b] Heitz, Verl. Schr. des Aristoteles, p. 56 seq.

aggravated when we combine it with another fact hardly less surprising. Both Cicero, and other writers of the century subsequent to him, (Dionysius Hal., Quintilian, &c.) make reference to Aristotle, and especially to his dialogues, of which none have been preserved, though the titles of several are given in the two catalogues mentioned above. These writers bestow much encomium on the style of Aristotle; but what is remarkable is, that they ascribe to it attributes which even his warmest admirers will hardly find in the Aristotelian works now remaining. Cicero extols the sweetness, the abundance, the variety, the rhetorical force which he discovered in Aristotle's writings: he even goes so far as to employ the phrase "*flumen orationis aureum*" (a golden stream of speech), in characterizing the Aristotelian style.* Such predicates may have been correct, indeed were doubtless correct,

* Cicero, Acad. Prior. ii. 38, 119: "Quum enim tuus iste Stoicus sapiens syllabatim tibi ista dixerit, veniet flumen orationis aureum fundens Aristoteles, qui illum desipere dicat." Also Topica, i. 3. "Quibus (*i. e.* those who were ignorant of Aristotle) eo minus ignoscendum est, quod non modo rebus iis, quæ ab illo dictæ et inventæ sunt, adlici debuerunt, sed dicendi quoque incredibili quâdam quum copiâ, tum suavitate." Also De Oratore, i. 11, 49; Brutus, 31, 121; De Nat. Deor. ii. 37; De Inventione, ii. 2; De Finibus, i. 5, 14; Epistol. ad Atticum, ii. 1, where he speaks of the "Aristotelia pigmenta" along with the μυροθήκιον of Isokrates. Dionysius Hal. recommends the style of Aristotle in equal terms of admiration: παραληπτέον δὲ καὶ Ἀριστοτέλη εἰς μίμησιν τῆς τε περὶ τὴν ἑρμηνείαν δεινότητος καὶ τῆς σαφηνείας, καὶ τοῦ ἡδέος καὶ πολυμαθοῦς (De Veter. Script. Censurâ, p. 430, R.; De Verb. Copiâ, p. 187). Quintilian extols the "eloquendi suavitas" among Aristotle's excellences (Inst. Or. X. i. p. 510). Demetrius Phalereus (or the author who bears that title), De Eloquentiâ, s. 128, commends αἱ Ἀριστοτέλους χάριτες. David the Armenian, who speaks of him (having reference to the dialogue) as Ἀφροδίτης ἐννόμου γάμων (the correction of Bernays, Dial. des Arist. p. 137) καὶ χαρίτων ἀνάμεστος, probably copies the judgment of predecessors (Scholia ad Categor. p. 26, b. 36, Brandis).

Bernays (Die Dialoge des Aristoteles, pp. 3-5) points out how little justice has been done by modern critics to the literary merits, exhibited in the dialogues and other works now lost, of one whom we know only as a "dornichten und wortkargen Systematiker."

in regard to the dialogues, and perhaps to other lost works of Aristotle; but they describe exactly the opposite[a] of what we find in all the works preserved. With most of these (except the History of Animals) Cicero manifests no acquaintance; and some of the best modern critics declare him to have been ignorant of them.[b] Nor do other ancient authors, Plutarch, Athenæus, Diogenes Laertius, &c., give evidence of having been acquainted with the principal works of Aristotle known to us. They make reference only to works enumerated in the Catalogue of Diogenes Laertius.[c]

Here then, we find several embarrassing facts in regard to the Aristotelian Canon. Most of the works now accepted and known as belonging to Aristotle, are neither included in the full Aristotelian Catalogue given by Diogenes, nor were they known to Cicero;

[a] This opinion is insisted on by Ravaisson, Essai sur la Métaphysique d'Aristote, pp. 210, 211.

[b] Valentine Rose, Aristoteles Pseudepigraphus, p. 23: "Cicero philosophicis certe ipsius Aristotelis libris nunquam usus est." Heitz, Die Verlor. Schrift. des Aristot. pp. 31, 158, 187: "Cicero, dessen Unbekanntschaft mit beinahe sämmtlichen heute vorhandenen Werken des Aristoteles eine unstreitige Thatsache bildet, deren Bedeutung man sich umsonst bemüht hat abzuschwächen." Madvig, Excursus VII. ad Ciceron. De Finibus, p. 855: "Non dubito profiteri, Ciceronem mihi videri dialogos Aristotelis populariter scriptos, et Rhetorica (quibus hic Topica adnumero) tum πολιτείας legisse; difficiliora vero, quibus omnis interior philosophia continebatur, aut omnino non attigisse, aut si aliquando attigerit, non longe progressum esse, ut ipse de subtilioribus Aristotelis sententiis aliquid habere possit explorati." The language here used by Madvig is more precise than that of the other two; for Cicero must be allowed to have known, and even to have had in his library, the Topica of Aristotle.

[c] See this point enforced by Heitz, pp. 29-31. Athenæus (xiv. 656) refers to a passage of Philochorus, in which Philochorus alludes to Aristotle, that is, as critics have hitherto supposed, to Aristot. Meteorol. iv. 3, 21. Bussemaker (in his Præfat. ad Aristot. Didot, vol. iv. p. xix.) has shown that this supposition is unfounded, and that the passage more probably refers to one of the Problemata Inedita (iii. 43) which Bussemaker has first published in Didot's edition of Aristotle.

who, moreover, ascribes to Aristotle attributes of style not only different, but opposite, to those which *our* Aristotle presents. Besides, more than twenty of the compositions entered in the Catalogue are dialogues, of which form *our* Aristotle affords not a single specimen: while others relate to matters of ancient exploit or personal history; collected proverbs; accounts of the actual constitution of many Hellenic cities; lists of the Pythian victors and of the scenic representations; erotic discourses; legendary narratives, embodied in a miscellaneous work called 'Peplus'—a title perhaps borrowed from the *Peplus* or robe of Athênê at the Panathenaic festival, embroidered with various figures by Athenian women; a symposion or banquet-colloquy; and remarks on intoxication. All these subjects are foreign in character to those which *our* Aristotle treats.*

The difficulty of harmonizing *our* Aristotle with the Aristotle of the Catalogue is thus considerable. It has been so strongly felt in recent years, that one of the ablest modern critics altogether dissevers the two, and pronounces the works enumerated in the Catalogue not to belong to *our* Aristotle. I allude to Valentine Rose, who in his very learned and instructive volume, '*Aristoteles Pseudepigraphus*,' has collected and illustrated the fragments which remain of these works. He con-

* Brandis and Zeller, moreover, remark, that among the allusions made by Aristotle in the works which we possess to other works of his own, the majority relate to other works actually extant, and very few to any of the lost works enumerated in the Catalogue (Brand. Aristoteles, pp. 97-101; Zeller, Phil. der Griech. ii. 2. p. 79, ed. 2nd.) This however is not always the case: we find (*e. g.*) in Aristotle's notice of the Pythagorean tenets (Metaphys. A. p. 986, a. 12) the remark, διώρισται δὲ περὶ τούτων ἐν ἑτέροις ἡμῖν ἀκριβέστερον; where he probably means to indicate his special treatises, Περὶ τῶν Πυθαγορείων and Πρὸς τοὺς Πυθαγορείους, enumerated by Diog. L. v. 25, and mentioned by Alexander, Porphyry, and Simplikius. See Alexander, Schol. ad Metaphys. p. 542, b. 5, 560, b. 25, Br.; and the note of Schwegler on Metaphys. i. 5, p. 47.

siders them all pseudo-Aristotelian, composed by various unknown members of the Peripatetic school, during the century or two immediately succeeding the death of Aristotle, and inscribed with the illustrious name of the master, partly through fraud of the sellers, partly through carelessness of purchasers and librarians.[a] Emil Heitz, on the other hand, has argued more recently, that upon the external evidence as it stands, a more correct conclusion to draw would be (the opposite of that drawn by Rose, viz.): That the works enumerated in the Catalogue are the true and genuine; and that those which we possess, or most of them, are not really composed by Aristotle.[b] Heitz thinks this conclusion better sustained than that of Rose, though he himself takes a different view, which I shall presently mention.

It will be seen from the foregoing observations how much more difficult it is to settle a genuine Canon for Aristotle than for Plato. I do not assent to either of the two conclusions just indicated; but I contend that, if we applied to this question the same principles of judgment as those which modern Platonic critics often apply, when they allow or disallow dialogues of Plato, we should be obliged to embrace one or other of them, or at least something nearly approaching thereto. If a critic, after attentively studying the principal compositions now extant of *our* Aristotle, thinks himself entitled, on the faith of his acquired "*Aristotelisches Gefühl*," to declare that no works differing materially from them (either in subject handled, or in manner of handling, or in degree of excellence), can have been

[a] Valent. Rose, Aristoteles Pseudepigr. pp. 4-10. The same opinion is declared also in the earlier work of the same author, De Aristotelis Librorum Ordine et Auctoritate.

[b] Heitz, Die Verlor. Schrift. des Ar. pp. 29-30.

composed by Aristotle—he will assuredly be forced to include in such rejection a large proportion of those indicated in the Catalogue of Diogenes. Especially he will be forced to reject the Dialogues—the very compositions by which Aristotle was best known to Cicero and his contemporaries. For the difference between them and the known compositions of Aristotle, not merely in form but in style (the style being known from the epithets applied to them by Cicero), must have been more marked and decisive than that between the Alkibiades, Hippias, Theages, Erastæ, Leges, &c.—which most Platonic critics now set aside as spurious—and the Republic, Protagoras, Gorgias, Philêbus, &c., which they treat as indisputably genuine.*

In discussing the Platonic Canon, I have already declared that I consider these grounds of rejection to be unsafe and misleading. Such judgment is farther confirmed, when we observe the consequences to which they would conduct in regard to the Aristotelian Canon. In fact, we must learn to admit among genuine works,

* Thus (for example) in Bernays, who has displayed great acuteness and learning in investigating the Aristotelian Canon, and in collecting what can be known respecting the lost dialogues of Aristotle, we read the following observations:—"In der That mangelt es auch nicht an den bestimmtesten Nachrichten über die vormalige Existenz einer grossen aristotelischen Schriftenreihe, die von der jetzt erhaltenen *durch die tiefste formale Verschiedenheit* getrennt war. Das Verzeichniss aristotelischer Werke führt an seiner Spitze sieben und zwanzig Bände jetzt verlorener Schriften auf, die alle in der künstlerischen Gesprächsform abgefasst waren," &c. (Bernays, Die Dialoge des Aristoteles, p. 2; compare ibid. p. 30).

If, as Bernays justly contends, we are to admit these various writings, notwithstanding "the profound difference of form," as having emanated from the same philosopher Aristotle, how are we to trust the Platonic critics when they reject about one-third of the preserved dialogues of Plato, though there is no difference of form to proceed upon, but only a difference of style, merit, and, to a certain extent, doctrine?

Zeller (Die Phil. der Griechen, ii. 2, pp. 45, 46, 2nd ed.), remarks that the dialogues composed by Aristotle are probably to be ascribed to the earlier part of his literary life, when he was still (or had recently been) Plato's scholar.

both of Plato and Aristotle, great diversity in subject, in style, and in excellence.

I see no ground for distrusting the Catalogue given by Diogenes, as being in general an enumeration of works really composed by Aristotle. These works must have been lodged in some great library—probably the Alexandrine—where they were seen and counted, and the titles of them enrolled by some one or more among the *literati*, with a specification of the sum total obtained on adding together the lines contained in each.[a] I do not deny the probability, that, in regard to some, the librarians may have been imposed upon, and that pseudo-Aristotelian works may have been admitted; but whether such was partially the fact or not, the general goodness of the Catalogue seems to me unimpeachable. As to the author of it, the most admissible conjecture seems that of Brandis and others, recently adopted and advocated by Heitz: that the Catalogue owes its origin to one of the Alexandrine *literati*; probably to Hermippus of Smyrna, a lettered man and a pupil of Kallimachus at Alexandria, between 240–210 B.C. Diogenes does not indeed tell us from whom he borrowed the Catalogue; but in his life of Aristotle, he more than once cites Hermippus, as having treated of Aristotle and his biography in a work of some extent; and we know from other sources that Hermippus had devoted much attention to Aristotle as well as to other philosophers. If Hermippus be the author of this Catalogue, it must

[a] Stahr, who in the first volume of his work Aristotelia (p. 194), had expressed an opinion that the Catalogue given by Diogenes is the Catalogue "der eigenen Schriften des Stageiriten, wie sie sich in seinem Nachlasse befanden," retracts that opinion in the second volume of the same work (pp. 68-70), and declares the Catalogue to be an enumeration of the Aristotelian works in the library of Alexandria. Trendelenburg concurs in this later opinion (Procemium ad Commentar. in Aristot. De Animâ, p. 123).

have been drawn up about the same time that the Byzantine Aristophanes arranged the dialogues of Plato. Probably, indeed, Kallimachus the chief librarian, had prepared the way for both of them. We know that he had drawn up comprehensive tables, including, not only the principal orators and dramatists, with an enumeration of their discourses and dramas, but also various miscellaneous authors, with the titles of their works. We know, farther, that he noticed Demokritus and Eudoxus, and we may feel assured that, in a scheme thus large, he would not omit Plato or Aristotle, the two great founders of the first philosophical schools, nor the specification of the works of each contained in the Alexandrine library.[a] Heitz supposes that Hermippus was the author of most of the catalogues (not merely of Aristotle, but also of other philosophers) given by Diogenes;[b] yet that nevertheless Diogenes

[a] Ἕρμιππος ὁ Καλλιμάχειος ἐν τῷ πρώτῳ περὶ Ἀριστοτέλους, is cited by Athenæus, xv. 696; also v. 213.

Among the Tables prepared by Kallimachus, one was Πανοδάπων Συγγραμμάτων Πίναξ; and in it were included the Πλακουντοποιϊκὰ συγγράμματα Αἰγιμίου, καὶ Ἡγησίππου, καὶ Μητροβίου, ἔτι δὲ Φαίτου (Athenæus, xiv. 644). If Kallimachus carried down his catalogue of the contents of the library to works so unimportant as these, we may surely believe that he would not omit to catalogue such works of Aristotle as were in it. He appears to have made a list of the works of Demokritus (*i. e.* such as were in the library) with a glossary. See Brandis (Aristoteles, Berlin, 1853, p. 74); also Suidas *v.* Καλλίμαχος, Diogen. Laert. viii. 86; Dionys. Hal. De Dinarcho, pp. 630, 652 R.; Athenæus, viii. 336, xv. 669.

[b] Heitz, Die Verl. Schr. des Aristot. pp. 45-48.

Patricius, in his Discuss. Peripatetic. (t. i. pp. 13-18), had previously considered Hermippus as having prepared a Catalogue of the works of Aristotle, partly on the authority of the Scholion annexed to the conclusion of the Metaphysica of Theophrastus. Hermippus recited the testament of Aristotle (Athenæus, xiii. 589).

Both Valentine Rose and Bernays regard Andronikus as author of the Catalogue of Aristotle in Diogenes. But I think that very sufficient reasons to refute this supposition have been shown by Heitz, pp. 49-52.

The opinion given by Christ, respecting the Catalogue which we find in Diogenes Laertius—"illum catalogum non Alexandrinæ bibliothecæ, sed exemplarium Aristotelis ab Apel-

himself had no direct acquaintance with the works of Hermippus, but copied these catalogues at second-hand from some later author, probably Favorinus. This last supposition is noway made out.

It seems thus probable that the Catalogue given by Diogenes derives its origin from Hermippus or Kallimachus, enumerating the titles of such works of Aristotle as were contained in the Alexandrine library. But the aggregate of works composing *our* Aristotle is noway in harmony with that Catalogue. It proceeds from a source independent and totally different, viz., the edition and classification first published by the Rhodian Andronikus, in the generation between the death of Cicero and the Christian era. To explain the existence of these two distinct and independent sources and channels, we must have recourse to the remarkable narrative (already noticed in my chapter on the Platonic Canon), delivered mainly by Strabo and less fully by Plutarch, respecting the fate of the Aristotelian library after Aristotle's death.

At the decease of Aristotle, his library and MSS. came to Theophrastus, who continued chief of the Peripatetic school at Athens for thirty-five years, until his death in 287 B.C. Both Aristotle and Theophrastus not only composed many works of their own, but also laid out much money in purchasing or copying the works of others;[*] especially we are told that Aristotle, after the death of Speusippus, expended three talents in purchasing his books. The entire library of Theophrastus, thus enriched from two sources, was bequeathed by his testament to a philosophical friend

liconte Athenas translatorum fuisse equidem censeo"—is in substance the same as that of Rose and Bernays. I do not concur in it. (Christ, Studia in Aristotelis Libros Metaphysicos, Berlin, 1853, p. 105).

[*] Diog. L. iv. 5; Aulus Gellius, N. A. iii. 17.

and pupil, Neleus;* who left Athens, and carried away the library with him to his residence at the town of Skêpsis, in the Asiatic region known as Æolis, near Troad. At Skêpsis the library remained for the greater part of two centuries, in possession of the descendants of Neleus, men of no accomplishments and no taste for philosophy. It was about thirty or forty years after the death of Theophrastus that the kings of Pergamus began to occupy themselves in collecting their royal library, which presently reached a magnitude second only to that of Alexandria. Now Skêpsis was under their dominion, and it would seem that the kings seized the books belonging to their subjects for the use of the royal library; for we are told that the heirs of Neleus were forced to conceal their literary treasures in a cellar, subject to great injury, partly from damp, partly from worms. In this ruinous hiding-place the manuscripts remained for nearly a century and a half—"*blattarum ac tinearum epulæ*,"—until the Attalid dynasty at Pergamus became extinct. The last of these kings, Attalus, died in 133 B.C., bequeathing his kingdom to the Romans. All fear of requisitions for the royal library being thus at end, the manuscripts were in course of time withdrawn by their proprietors from concealment, and sold for a large sum to Apellikon, a native of Teos, a very rich resident at Athens, and attached to the Peripatetic sect. Probably this wealthy Peripatetic already possessed a library of his own, with some Aristotelian works; but the new acquisitions from Skêpsis, though not his whole stock, formed the most rare and precious ingredients in it.

* From a passage of Lucian (De Parasito. c. xxxv.) we learn that Aristoxenus spoke of himself as friend and guest of Neleus: καὶ τίς περὶ τούτου λέγει; Πολλοὶ μὲν καὶ ἄλλοι, Ἀριστόξενος δὲ ὁ μουσικός, πολλοῦ λόγου ἄξιος· καὶ αὐτὸς δὲ παράσιτος Νήλεως ἦν.

Here, then, the manuscripts and library both of Aristotle and Theophrastus became, for the first time since 287 B.C., open to the inspection of the Athenian Peripatetics of the time (about 100 B.C.), as well as of other learned men. Among the stock were contained many compositions which the Scholarchs, successors of Theophrastus at Athens, had neither possessed nor known.[a] But the manuscripts were found imperfect, seriously damaged, and in a state of disorder. Apellikon did his best to remedy that mischief, by causing new copies to be taken, correcting what had become worm-eaten, and supplying what was defective or illegible. He appears to have been an erudite man, and had published a biography of Aristotle, refuting various calumnies advanced by other biographers; but being (in the words of Strabo) a lover of books rather than a philosopher, he performed the work of correction so unskilfully, that the copies which he published were found full of errors.[b]

[a] Strabo, xiii. 608, 609; Athenæus, v. 214. The narrative of Strabo has been often misunderstood and impugned, as if he had asserted that none of the main works of Aristotle had ever been published until they were thus exhumed by Apellikon. This is the supposed allegation which Stahr, Zeller, and others, have taken so much pains to refute. But in reality Strabo says no such thing. His words affirm or imply the direct contrary, viz., that many works of Aristotle, not merely the exoteric works but others besides, *had* been published earlier than the purchase made by Apellikon. What Strabo says is, that few of these works were in possession of the Peripatetic Scholarchs at Athens before the time of that purchase; and he explains thus how it was that these Scholarchs, during the century intervening, had paid little attention to the profound and abstruse speculations of Aristotle; how it was that they had confined themselves to dialectic and rhetorical debate on special problems. I see no ground for calling in question the fact affirmed by Strabo—the poverty of the Peripatetic school-library at Athens; though he may perhaps have assigned a greater importance to that fact than it deserves, as a means of explaining the intellectual working of the Peripatetic Scholarchs from Lykon to Kritolaus. The philosophical impulse of that intervening century seems to have turned chiefly towards ethics and the *Summum Bonum*, with the conflicting theories of Platonists, Peripatetics, Stoics, and Epikureans thereupon.

[b] Strabo, xiii. 609. ἦν δὲ ὁ Ἀπελλικῶν φιλόβιβλος μᾶλλον ἢ φιλόσοφος, διὸ καὶ ζητῶν ἐπανόρθωσιν τῶν

In the year 86 B.C., Sylla besieged Athens, and captured it by storm; not long after which he took to himself as a perquisite the library of Apellikon, and transported it to Rome.[a] It was there preserved under custody of a librarian, and various literary Greeks resident at Rome obtained access to it, especially Tyrannion, the friend of Cicero and a warm admirer of Aristotle, who took peculiar pains to gain the favour of the librarian.[b] It was there also that the Rhodian Andronikus obtained access to the Aristotelian works.[c] He classified them to a great degree anew, putting in juxta-position the treatises most analogous in subject;[d] moreover, he corrected the text, and pub-

διαβρωμάτων, εἰς ἀντίγραφα καινὰ μετήνεγκε τὴν γραφὴν ἀναπληρῶν οὐκ εὖ, καὶ ἐξέδωκεν ἁμαρτάδων πλήρη τὰ βίβλια.

[a] Strabo, xiii. 609; Plutarch, Sylla, c. xxvi.

[b] Strabo, xiii. 609. Τυραννίων ὁ γραμματικὸς διεχειρίσατο φιλαριστοτέλης ὤν, θεραπεύσας τὸν ἐπὶ τῆς βιβλιοθήκης. Tyrannion had been the preceptor of Strabo (xii. 548); and Boëthus, who studied Aristotle along with Strabo, was a disciple of the Rhodian Andronikus. See Ammonius ad Categorias, f. 8; and Ravaisson, Essai sur la Métaphysique d'Aristote, Introduction, p. 10.

[c] Plutarch, Sylla, c. xxvi.

[d] The testimony of Porphyry in respect to Andronikus, and to the real service performed by Andronikus, is highly valuable. Porphyry was the devoted disciple and friend, as well as the literary executor, of Plotinus; whose writings were left in an incorrect and disorderly condition. Porphyry undertook to put them in order and publish them; and he tells us that, in fulfilling this promise, he followed the example of what Andronikus had done for the works of Aristotle and Theophrastus. Ἐπεὶ δὲ αὐτὸς (Plotinus) τὴν διόρθωσιν καὶ τὴν διάταξιν τῶν βιβλίων ποιεῖσθαι ἡμῖν ἐπέτρεψεν, ἐγὼ δὲ ἐκείνῳ ζῶντι ὑπεσχόμην καὶ τοῖς ἄλλοις ἑταίροις ἐπηγγειλάμην ποιῆσαι τοῦτο, πρῶτον μὲν τὰ βίβλια οὐ κατὰ χρόνους ἐᾶσαι φύρδην ἐκδεδομένα ἐδικαίωσα, μιμησάμενος δ' Ἀπολλόδωρον τὸν Ἀθηναῖον καὶ Ἀνδρόνικον τὸν Περιπατητικόν, ὧν ὁ μὲν Ἐπίχαρμον τὸν κωμῳδιογράφον εἰς δέκα τόμους φέρων συνήγαγεν, ὁ δὲ τὰ Ἀριστοτέλους καὶ Θεοφράστου εἰς πραγματείας διεῖλε, τὰς οἰκείας ὑποθέσεις εἰς ταὐτὸν συναγαγών, οὕτω δὴ καὶ ἐγὼ πεντήκοντα τέσσαρα ὄντα ἔχων τὰ τοῦ Πλωτίνου βίβλια διεῖλον μὲν εἰς ἓξ ἐννεάδας, τῇ τελειότητι τοῦ ἓξ ἀριθμοῦ καὶ ταῖς ἐννεάσιν ἁσμένως ἐπιτυχών, ἑκάστῃ δὲ ἐννεάδι τὰ οἰκεῖα φέρων συνεφόρησα, δοὺς καὶ τάξιν πρώτην τοῖς ἐλαφροτέροις προβλήμασιν. (Porphyry, Vita Plotini, p. 117, Didot.) Porphyry here distinctly affirms that Andronikus rendered this valuable service not merely to the works of Aristotle, but also to those of Theophrastus. This is important, as connecting him with the library conveyed

lished a new edition of the manuscripts, with a tabulated list. This was all the more necessary, because some booksellers at Rome, aiming only at sale and profit, had employed bad writers, and circulated inaccurate copies, not collated with the originals.[a] These originals, however, were so damaged, and the restitutions made by Apellikon were so injudicious, that the more careful critics who now studied them were often driven to proceed on mere probable evidence.

This interesting narrative—delivered by Strabo, the junior contemporary of Andronikus, and probably derived by him either from Tyrannion his preceptor or from the Sidonian Boêthus[b] and other philosophical companions jointly, with whom he had prosecuted the study of Aristotle—appears fully worthy of trust. The proceedings both of Apellikon and of Sylla prove, what indeed we might have presumed without proof, that the recovery of these long-lost original manuscripts of Aristotle and Theophrastus excited great sensation in the philosophical world of Athens and of Rome. With such newly-acquired materials, a new epoch began for the study of these authors. The more abstruse philosophical works of Aristotle now came into the foreground under the auspices of a new Scholarch; whereas Aristotle had hitherto been chiefly known by his more popular and readable compositions. Of these last, probably, copies may have been acquired to a certain

by Sylla to Rome; which library we know to have contained the manuscripts of both these philosophers. And in the Scholion appended to the Metaphysica of Theophrastus (p. 323, Brandis) we are told that Andronikus and Hermippus had made a catalogue of the works of Theophrastus, in which the Metaphysica was not included.

[a] Strabo, xiii. 609: *βιβλιοπῶλαί τινες γραφεῦσι φαύλοις χρώμενοι καὶ οὐκ ἀντιβάλλοντες*, &c.

[b] Strabo, xvi. 757. Stahr, in his minor work, Aristoteles unter den Römern, p. 32, considers that this circumstance lessens the credibility of Strabo. I think the contrary. No one was so likely to have studied the previous history of the MSS. as the editors of a new edition.

extent by the previous Peripatetic Scholarchs or School at Athens; but the School had been irreparably impoverished, so far as regarded the deeper speculations of philosophy, by the loss of those original manuscripts which had been transported from Athens to Skêpsis. What the Aristotelian Scholarchs, prior to Andronikus, chiefly possessed and studied, of the productions of their illustrious founder, were chiefly the *exoteric* or extra-philosophical and comparatively popular:—such as the dialogues; the legendary and historical collections; the facts respecting constitutional history of various Hellenic cities; the variety of miscellaneous problems respecting Homer and a number of diverse matters; the treatises on animals and on anatomy, &c.[a] In the Alexandrine library (as we see by the Catalogue of Diogenes) there existed all these and several philosophical works also; but that library was not easily available for the use of the Scholarchs at Athens, who worked upon their own stock, confining themselves mainly to smooth and elegant

[a] Strabo, xiii. 609: *συνέβη δὲ τοῖς ἐκ τῶν περιπάτων τοῖς μὲν πάλαι τοῖς μετὰ Θεόφραστον, ὅλως οὐκ ἔχουσι τὰ βίβλια πλὴν ὀλίγων καὶ μάλιστα τῶν ἐξωτερικῶν, μηδὲν ἔχειν φιλοσοφεῖν πραγματικῶς, ἀλλὰ θέσεις ληκυθίζειν· τοῖς δ' ὕστερον, ἀφ' οὗ τὰ βίβλια ταῦτα προῆλθεν, ἅμεινον μὲν ἐκείνων φιλοσοφεῖν καὶ ἀριστοτελίζειν, ἀναγκάζεσθαι μέντοι τὰ πολλὰ εἰκότα λέγειν διὰ τὸ πλῆθος τῶν ἀμαρτιῶν.* Also Plutarch, Sylla, c. xxvi.

The passage of Strabo is so perspicuous and detailed, that it has all the air of having been derived from the best critics who frequented the library at Rome, where Strabo was when he wrote (*καὶ ἔνθαδε καὶ ἐν Ἀλεξανδρείᾳ*, xiii. 609). The Peripatetic Andronikus, whom he names among the celebrated Rhodians (xiv. 655), may have been among his informants. His statements about the bad state of the manuscripts; the unskilful emendations of Apellikon; the contrast between the vein of Peripatetic study, as it had stood before the revelation of the manuscripts, and as it came to stand afterwards; the uncertain evidences upon which careful students, even with the manuscripts before them, were compelled to proceed; the tone of depreciation in which he speaks of the carelessness of booksellers who sought only for profit,—all these points of information appear to me to indicate that Strabo's informants were acute and diligent critics, familiar with the library, and anxious both for the real understanding of these documents, and for philosophy as an end.

discourses on particular questions, and especially to discussions, with the Platonists, Stoics, and Epikureans, on the *principia* of Ethics, without any attempt either to follow up or to elucidate the more profound speculations (logical, physical, metaphysical, cosmical) of Aristotle himself. A material change took place when the library of Apellikon came to be laid open and studied, not merely by lecturers in the professorial chair at Athens, but also by critics like Tyrannion and Andronikus at Rome. These critics found therein the most profound and difficult philosophical works of Aristotle in the handwriting of the philosopher himself; some probably, of which copies may have already existed in the Alexandrine library, but some also as yet unpublished. The purpose of Andronikus, who is described as Peripatetic Scholarch, eleventh in succession from Aristotle, was not simply to make a Catalogue (as Hermippus had made at Alexandria), but to render a much greater service, which no critic could render without having access to original MSS., namely, to obtain a correct text of the books actually before him, to arrange these books in proper order, and then to publish and explain them,* but to take no account of other Aristotelian works in the Alexandrine library or else-

* Plutarch, Sylla, c. xxvi. Spengel ("Ueber die Reihenfolge der naturwissenschaftlichen Schriften des Aristoteles," München. philol. Abhandl. 1848,) remarks justly that the critical arrangement of Aristotle's writings, for collective publication, begins from the library of Apellikon at Rome, not from that of Alexandria. See p. 146: "Mehr als zweihundert Jahre lang fehlt uns alle nähere Kunde über die peripatetische Schule. Erst mit der viel besprochenen Auffindung der Bibliothek des Aristoteles in Athen und deren Wegführung nach Rom durch Sulla wird ein regeres Studium für die Schriften des Philosophen bemerkbar—*und zwar jetzt eigentlich der Schriften, weniger der Lehre und Philosophie im Allgemeinen, welche früher allein beachtet worden ist.* Wir möchten sagen, von jetzt an beginne das philologische Studium mit den Werken des Aristoteles, die kritische und exegetische Behandlung dieser durch Tyrannion, Andronikus, Adrastus und viele andre nachfolgende," &c.

where. The Aristotelian philosophy thus passed into a new phase. Our editions of Aristotle may be considered as taking their date from this critical effort of Andronikus, with or without subsequent modifications by others, as the case may be.

The explanation just given, coinciding on many points with Brandis and Heitz, affords the most probable elucidation of that obscurity which arises about the Aristotelian Canon, when we compare *our* Aristotle with the Catalogue of Diogenes—the partial likeness, but still greater discrepancy, between the two. It is certain that neither Cicero[a] nor the great Alexandrine *literati*, anterior to and contemporary with him, knew Aristotle from most of the works which we now possess. They knew him chiefly from the dialogues, the matters of history and legend, some zoological books, and the problems; the dialogues, and the historical collections respecting the constitutions of Hellenic cities,[b] being

[a] This is certain, from the remarks addressed by Cicero to Trebatius at the beginning of the Ciceronian Topica, that in his time Aristotle was little known and little studied at Rome, even by philosophical students. Trebatius knew nothing of the Topica, until he saw the work by chance in Cicero's library, and asked information about the contents. The reply of Cicero illustrates the little notice taken of Aristotle by Roman readers. "Cum autem ego te, non tam vitandi laboris mei causâ, quam quia tua id interesse arbitrarer, vel ut eos per te ipse legeres, vel ut totam rationem a doctissimo quodam rhetore acciperes, hortatus essem, utrumque ut ex te audiebam, es expertus. Sed a libris te obscuritas rejecit: rhetor autem ille magnus, ut opinor, *Aristotelia se ignorare* respondit. Quod quidem minime sum admiratus, eum philosophum rhetori non esse cognitum, *qui ab ipsis philosophis, præter admodum paucos, ignoraretur.*" Compare also Cicero, Academ. Post. i. 3, 10.

[b] Even the philosophical commentators on Aristotle, such as David the Armenian, seem to have known the lost work of Aristotle called Πολιτεῖαι (the history of the constitutions of 250 Hellenic cities), better than the theoretical work which we possess, called the Politica; though they doubtless knew both. (See Scholia ad Categorias, Brandis, p. 16, b. 20; p. 24, a. 25; p. 25, b. 5.)—We read in Schneider's Preface to the Aristotelian Politica (p. x.): "Altum et mirabile silentium est apud antiquitatem Græcam et Romanam de novâ Aristotelis Republicâ, cum omnes ferè scriptores

more popular and better known than any other works. While the Republic of Plato is familiar to them, they exhibit no knowledge of our Aristotelian Politica, in which treatise the criticism upon the Platonic Republic is among the most interesting parts. When we look through the contents of our editions of Aristotle the style and manner of handling is indeed pretty much the same throughout, but the subjects will appear extremely diverse and multifarious; and the encyclopedical character of the author, as to science and its applications, will strike us forcibly. The entire and real Aristotle, however, was not only more encyclopedical as to subjects handled, but also more variable as to style and manner of handling; passing from the smooth, sweet, and flowing style—which Cicero extols as characterizing the Aristotelian dialogues—to the elliptical brevity and obscurity which we now find so puzzling in the De Animâ and the Metaphysica.[a]

Græci et Romani, mentione Reipublicæ Platonicæ pleni, vel laudibus vel vituperiis ejus abundant."—There is no clear reference to the Aristotelian Politica earlier than Alexander of Aphrodisias. Both Hildenbrand (Geschichte der Staats- und Rechts-Philosophen, t. i. pp. 358-361), and Oncken (Staatslehre des Aristot. pp. 65-66), think that the Aristotelian Politica was not published until after the purchase of the library by Apellikon.

[a] What Strabo asserts about the Peripatetic Scholarchs succeeding Theophrastus (viz., *μηδὲν ἔχειν φιλοσοφεῖν πραγματικῶς, ἀλλὰ θέσεις ληκυθίζειν*: that they could not handle philosophy in a businesslike way—with those high generalities and that subtle analysis which was supposed to belong to philosophy—but gave smooth and ornate discourses on set problems or theses) is fully borne out by what we read in Cicero about these same Peripatetics. The Stoics (immediate successors and rivals) accused their Peripatetic contemporaries even of being ignorant of Dialectic; which their founder, Aristotle, in his works that we now possess, had been the first to raise into something like a science. Cicero says (De Finibus, iii. 12, 41): "His igitur ita positis (inquit Cato) sequitur magna contentio: quam tractatam à Peripateticis mollius (*est enim eorum consuetudo dicendi non satis acuta, propter ignorationem Dialecticæ*), Carneades tuus, egregiâ quâdam exercitatione in dialecticis summâque eloquentiâ, rem in summum discrimen adduxit." Also Cicero, in Tuscul. Disput. iv. 5, 9: "Quia Chrysippus et Stoici, quum de animi perturbationibus disputant,

I shall assume this variety, both of subject and of handling, as a feature to be admitted and allowed for in Aristotle, when I come to discuss the objections of some critics against the authenticity of certain treatises among the forty-six which now pass under his name. But in canvassing the Aristotelian Canon I am unable to take the same ground as I took in my former work, when reviewing the Platonic Canon. In regard to Plato, I pointed out a strong antecedent presumption in favour of the Canon of Thrasyllus—a canon derived originally from the Alexandrine librarians, and sustained by the unanimous adhesion of antiquity. In regard to Aristotle, there are no similar grounds of presumption to stand upon. We have good reason for believing that the works both of Plato and Aristotle—if not all the works, at least many of them, and those the most generally interesting—were copied and transmitted early to the Alexandrine library. Now *our* Plato represents that which was possessed and accredited as Platonic by the Byzantine Aristophanes and the other Alexandrine librarians; but *our* Aristotle does not, in my judgment, represent what these librarians possessed and accredited as Aristotelian. That which they thus accredited stands recorded in the Catalogue given by

magnam partem in iis partiendis et definiendis occupati sunt, illa eorum perexigua oratio est, quâ medeantur animis nec eos turbulentos esse patiantur. Peripatetici autem *ad placandos animos multa afferunt, spinas partiendi et definiendi prætermittunt.*" This last sentence is almost an exact equivalent of the words of Strabo: *μηδὲν ἔχειν φιλοσοφεῖν πραγματικῶς, ἀλλὰ θέσεις ληκυθίζειν.* Aristotle himself, in the works which we possess, might pass as father of the Stoics rather than of the Peripatetics; for he abounds in classification and subdivision (spinas partiendi et dividendi), and is even derided on this very ground by opponents (see Atticus ap. Euseb. Præp. Ev. xv. 4); but he has nothing of the polished amplification ascribed to the later Peripatetics by Strabo and Cicero. Compare, about the Peripatetics from Lykon to Kritolaus, Cicero, De Finibus, v. 5: "Lyco, oratione locuples, rebus ipsis jejunior." Plutarch (Sylla, c. xxvi.) calls these later Peripatetics *χαριέντες καὶ φιλόλογοι*, &c.

Diogenes, probably the work of Hermippus, as I have already stated; while *our* Aristotle is traceable to the collection at Athens, including that of Apellikon, with that which he bought from the heirs of Neleus, and to the sifting, correction, and classification, applied thereto by able critics of the first century B.C. and subsequently; among whom Andronikus is best known. We may easily believe that the library of Apellikon contained various compositions of Aristotle, which had never been copied for the Alexandrine library—perhaps never prepared for publication at all, so that the task of arranging detached sections or morsels into a whole, with one separate title, still remained to be performed. This was most likely to be the case with abstruser speculations, like the component books of the Metaphysica, which Theophrastus may not have been forward to tender, and which the library might not be very eager to acquire, having already near four hundred other volumes by the same author. These reserved works would therefore remain in the library of Theophrastus, not copied and circulated (or at least circulated only to a few private philosophical brethren, such as Eudêmus), so that they never became fully published until the days of Apellikon.[a]

[a] The two Peripatetic Scholarchs at Athens, Straton and Lykon, who succeeded (after the death of Theophrastus and the transfer of his library to Skêpsis) in the conduct of the school, left at their decease collections of books, of which each disposes by his will (Diogen. L. v. 62; v. 73). The library of Apellikon, when sent by Sylla to Rome, contained probably many other Aristotelian MSS., besides those purchased from Skêpsis.

Michelet, in his Commentary on the Nikomachean Ethica, advances a theory somewhat analogous but bolder, respecting the relation between the Catalogue given by Diogenes, and the works contained in *our* Aristotle. Comm. p. 2. "Id solum addam, hoc Aristotelis opus (the Nikomachean Ethica), ut reliqua omnia, ex brevioribus commentationibus consarcinatum fuisse, quæ quidem vivo Aristotele in lucem prodierint, cum unaquæque disciplina, e quâ excerpta fuerint, in admirabilem illum quem habemus ordinem jam ab ipso Aristotele sive quodam ejus discipulo redacta, in

But though the edition published by Andronikus would thus contain many genuine works of Aristotle not previously known or edited, we cannot be sure that it would not also include some which were spurious. Reflect what the library of Apellikon, transported to Rome by Sylla, really was. There was in it the entire library of Theophrastus; probably, also, that of Neleus, who must have had some books of his own, besides what he inherited from Theophrastus. It included all the numerous manuscript works composed by Aristotle and Theophrastus, and many other manuscript works purchased or acquired by them, but composed by others—the whole in very bad order and condition; and, moreover, the books which Apellikon possessed before, doubtless as many Aristotelian books as he could purchase. To distinguish, among this heterogeneous mass of manuscripts, which of them were the manuscripts composed by Aristotle; to separate these from the writings of Theophrastus, Eudêmus, or other authors, who composed various works of their own upon the same subjects and with the same titles as those of Aristotle—required extreme critical discernment and caution; the rather, since there was no living companion of Aristotle or Theophrastus to guide or advise, more than a century

libris Aristotelis manu scriptis latitaverit, qui hereditate ad Nelei prolem, ut notum est, transmissi, in cellâ illâ subterraneâ Scepsiâ absconditi fuerunt, donec Apellicon Teius et Rhodius Andronicus eos ediderint. Leguntur autem commentationum illarum de Moribus tituli in elencho librorum Aristotelis apud Diogenem (v. 22-26): περὶ ἀρετῶν (Lib. ii., iii. c. 6-fin. iv. nostrorum Ethicorum); περὶ ἑκουσίου (Lib. iii. c. 1-5); περὶ δικαιοσύνης (Lib. v.); περὶ φιλίας (Lib. viii.-ix.); περὶ ἡδονῆς (Lib. x. c. 1-5), &c. Plerumque enim non integra volumina, sed singulos libros vel singula volumina diversarum disciplinarum, Diogenes in elencho suo enumeravit."

In his other work (Essai sur la Métaphysique d'Aristote, pp. 202, 205, 225) Michelet has carried this theory still farther, and has endeavoured to identify separate fragments of the Aristotelian works now extant, with various titles in the Catalogue given by Diogenes. The identification is not convincing.

and a half having elapsed since the death of Theophrastus, and two centuries since that of Aristotle. Such were the difficulties amidst which Apellikon, Tyrannion, and Andronikus had to decide, when they singled out the manuscripts of Aristotle to be published. I will not say that they decided wrongly; yet neither can I contend (as I argued in the case of the Platonic dialogues) that the presumption is very powerful in favour of that Canon which their decision made legal. The case is much more open to argument, if any grounds against the decision can be urged.

Andronikus put in, arranged, and published the treatises of Aristotle (or those which he regarded as composed by Aristotle) included in the library conveyed by Sylla to Rome. I have already observed, that among these treatises there were some, of which copies existed in the Alexandrine library (as represented by the Catalogue of Diogenes), but a still greater number which cannot be identified with the titles remaining of works there preserved. As to the works common to both libraries, we must remember that Andronikus introduced a classification of his own, analogous to the Enneads applied by Porphyry to the works of Plotinus, and to the Tetralogies adopted by Thrasyllus in regard to the Dialogues of Plato; so that even these works might not be distributed in the same partitions under each of the two arrangements. And this is what we actually see when we compare the Catalogue of Diogenes with *our* Aristotle. Rhetoric, Ethics, Physics, Problems, &c., appear in both as titles or subjects, but distributed into a different number of books or sections in one and in the other; perhaps, indeed, the compositions are not always the same.

Before I proceed to deal with the preserved works of Aristotle—those by which alone he is known to us, and

was known to mediæval readers, I shall say a few words respecting the import of a distinction which has been much canvassed, conveyed in the word *exoteric* and its opposite. This term, used on various occasions by Aristotle himself, has been also employed by many ancient critics, from Cicero downwards; while, by mediæval and modern critics, it has not merely been employed, but also analysed and elucidated. According to Cicero (the earliest writer subsequent to Aristotle in whom we find the term), it designates one among two classes of works composed by Aristotle: *exoteric works* were those composed in a popular style and intended for a large, indiscriminate circle of readers; being contrasted with other works of elaborated philosophical reasoning, which were not prepared for the public taste, but left in the condition of memorials for the instruction of a more select class of studious men. Two points are to be observed respecting Cicero's declaration. First, he applies it to the writings not of Aristotle exclusively, but also to those of Theophrastus, and even of succeeding Peripatetics; secondly, he applies it directly to such of their writings only as related to the discussion of the *Summum Bonum*.[a] Furthermore, Cicero

[a] Cicero, De Finibus, v. 5, 12. "De summo autem bono, quia duo genera librorum sunt, unum populariter scriptum, quod ἐξωτερικὸν appellabant, alterum limatius, quod in commentariis reliquerunt, non semper idem dicere videntur: nec in summâ tamen ipsâ aut varietas est ulla, apud hos quidem quos nominavi, aut inter ipsos dissensio."

The word *limatius* here cannot allude to high polish and ornament of style (nitor orationis), but must be equivalent to ἀκριβέστερον, *doctius*, *subtilius*, &c. (as Buhle and others have already remarked, Buhle, De Libris Aristot. Exoter. et Acroam. p. 115; Madvig, ad Cicero de Finib. v. 12; Heitz, p. 134), applied to profound reasoning, with distinctions of unusual precision, which it required a careful preparatory training to apprehend. This employment of the word *limatius* appears to me singular, but it cannot mean anything else here. The *commentarii* are the general heads—plain unadorned statements of facts or reasoning—which the orator or historian is to employ his genius in setting forth

describes the works which Aristotle called exoteric, as having *proems* or introductory prefaces.[a]

In the main, the distinction here drawn by Cicero, understood in a very general sense, has been accepted by most following critics as intended by the term *exoteric:* something addressed to a wide, indiscriminate circle of general readers or hearers, and intelligible or interesting to them without any special study or training—as contrasted with that which is reserved for a smaller circle of students assumed to be specially qualified. But among those who agree in this general admission, many differences have prevailed. Some have thought that the term was not used by Aristotle to designate any writings either of his own or of others, but only in allusion to informal oral dialogues or debates. Others again, feeling assured that Aristotle intended by the term to signify some writings of his own, have searched among the works preserved, as well as among the titles of the works lost, to discriminate such as the author considered to be exoteric: though this search has certainly not ended in unanimity; nor do I think it has been successful. Again, there have not been wanting critics (among them, Thomas Aquinas and Sepulveda), who assign to the term a meaning still more vague and undefined; contending that when Aristotle alludes to "exoteric discourses," he indicates simply some other treatise of his own, distinct from

and decorating, so that it may be heard or read with pleasure and admiration by a general audience. Cicero, in that remarkable letter wherein he entreats Lucceius to narrate his (Cicero's) consulship in an historical work, undertakes to compose "commentarios rerum omnium" as materials for the use of Lucceius (Ep. ad Famil. v. 12. 10). His expression, "in commentariis reliquerunt," shows that he considered the exoteric books to have been prepared by working up some naked preliminary materials into an ornate and interesting form.

[a] Cicero, Ep. ad Att. iv. 16.

that in which the allusion occurs, without meaning to imply anything respecting its character.*

To me it appears that this last explanation is untenable, and that the term *exoteric* designates matter of a certain character, assignable to some extent by positive marks, but still more by negative; matter, in part, analogous to that defined by Cicero and other critics. But to conceive clearly or fully what its character is, we must turn to Aristotle himself, who is of course the final authority, wherever he can be found to speak in a decisive manner. His preserved works afford altogether eight passages (two of them indeed in the Eudemian Ethics, which, for the present at least, I shall assume to be his work), wherein the phrase "exoteric discourses" (ἐξωτερικοὶ λόγοι) occurs. Out of these eight passages, there are seven which present the phrase as designating some unknown matter, not farther specified, but distinct from the work in which the phrase occurs: "Enough has been said (or is said, Aristotle intimates), about this subject, even in the exoteric discourses." To what it is that he here alludes —whether to other writings of his own, or oral discussions of his own, or writing and speech of a particular sort by others—we are left to interpret as we

* Sepulveda, p. 125 (cited by Bernays, Dialoge des Aristoteles, p. 41): "Externos sermones sive exotericos solet Aristoteles libros eos appellare, quicunque sunt extra id opus in quo tunc versatur, ut jure pontificio periti consueverunt: non enim exoterici sermones seu libri certo aliquo genere continentur, ut est publicus error."

Zeller lends his high authority to an explanation of *exoteric* very similar to the above. (Gesch. der Philos. ii. 2, p. 100, seq.:—"dass unter exoterischen Reden nicht eine eigene Klasse populär geschriebener Bücher, sondern nur überhaupt solche Erörterungen verstanden werden, welche nicht in den Bereich der vorliegenden Untersuchung gehören.") He discusses the point at some length; but the very passages which he cites, especially Physica, iv. 10, appear to me less favourable to his view than to that which I have stated in the text, according to which the word means *dialectic* as contrasted with *didactic*.

best may, by probable reason or conjecture. But there is one among the eight passages, in which Aristotle uses the term *exoteric* as describing, not what is to be looked for elsewhere, but what he is himself about to give in the treatise in hand. In the fourth book of the Physica, he discusses the three high abstractions, Place, Vacuum, Time. After making an end of the first two, he enters upon the third, beginning with the following words:—"It follows naturally on what has been said, that we should treat respecting Time. But first it is convenient to advert to the difficulties involved in it, by *exoteric discourse also*—whether Time be included among entities or among non-entities; then afterwards, what is its nature. Now a man might suspect, from the following reasons, that Time either absolutely does not exist, or exists scarcely and dimly," &c. Aristotle then gives a string of dialectic reasons, lasting through one of the columns of the Berlin edition, for doubting whether Time really exists. He afterwards proceeds thus, through two farther columns:—"Let these be enumerated as the difficulties accompanying the attributes of Time. What Time is, and what is its nature, is obscure, as well from what has been handed down to us by others, as from what we ourselves have just gone through;"* and this question also he first discusses dialectically, and then brings to a solution.

* Aristot. Physic. iv. 10, p. 217, b. 29. Ἐχόμενον δὲ τῶν εἰρημένων ἐστὶν ἐπελθεῖν περὶ χρόνου· πρῶτον δὲ καλῶς ἔχει διαπορῆσαι περὶ αὐτοῦ καὶ διὰ τῶν ἐξωτερικῶν λόγων, πότερον τῶν ὄντων ἐστὶν ἢ τῶν μὴ ὄντων, εἶτα τίς ἡ φύσις αὐτοῦ. ὅτι μὲν οὖν ἢ ὅλως οὐκ ἔστιν, ἢ μόλις καὶ ἀμυδρῶς, ἐκ τῶνδέ τις ἂν ὑποπτεύσειεν. Then, after a column of text urging various ἀπορίαι as to whether Time is or is not, he goes on, p. 218, a. 31:—Περὶ μὲν οὖν τῶν ὑπαρχόντων αὐτῷ τοσαῦτ' ἔστω διηπορημένα. τί δ' ἐστὶν ὁ χρόνος, καὶ τίς αὐτοῦ ἡ φύσις, ὁμοίως ἔκ τε τῶν παραδεδομένων ἄδηλόν ἐστι, καὶ περὶ ὧν τυγχάνομεν διεληλυθότες πρότερον—thus taking up the questions, What Time is? What is the nature of Time? Upon this he goes through another column of ἀπορίαι, difficulties and counter-diffi-

Now what is it that Aristotle here means by "exoteric discourse?" We may discover by reading the matter comprised between the two foregoing citations. We find a string of perplexing difficulties connected with the supposition that Time exists: such as, "That all Time is either past or future, of which the former no longer exists, and the latter does not yet exist; that the Now is no part of Time, for every Whole is composed of its Parts, and Time is not composed of Nows," &c. I do not go farther here into these subtle suggestions, because my present purpose is only to illustrate what Aristotle calls "exoteric discourse," by exhibiting what he himself announces to be a specimen thereof. It is the process of noticing and tracing out all the doubts and difficulties (*ἀπορίας*) which beset the enquiry in hand, along with the different opinions entertained about it either by the vulgar, or by individual philosophers, and the various reasons whereby such opinions may be sustained or impugned. It is in fact the same process as that which, when performed (as it was habitually and actively in his age) between two disputants, he calls *dialectic debate*; and which he seeks to encourage as well as to regulate in his treatise entitled Topica. He contrasts it with philosophy, or with the strictly didactic

culties, until p. 219, a. 1, when he approaches to a positive determination, as the sequel of various negatives —*ὅτι μὲν οὖν οὔτε κίνησις οὔτ' ἄνευ κινήσεως ὁ χρόνος ἐστί, φανερόν. λεκτέον δέ, ἐπεὶ ζητοῦμεν τί ἐστιν ὁ χρόνος, ἐντεῦθεν ἀρχομένοις, τί τῆς κινήσεώς ἐστιν.* He pursues this positive determination throughout two farther columns (see *ὑποκείσθω*, a. 30), until at length he arrives at his final definition of Time—*ἀριθμὸς κινήσεως κατὰ τὸ πρότερον καὶ ὕστερον, καὶ συνεχής* (*συνεχοῦς γὰρ*)—which he declares to be *φανερόν*, p. 220, a. 25.

It is plain that the phrase *ἐξωτερικοὶ λόγοι* here designates the preliminary dialectic tentative process, before the final affirmative is directly attempted, as we read in De Gener. et Corr. i. 3, p. 317, b. 13: *περὶ μὲν οὖν τούτων ἐν ἄλλοις τε διηπόρηται καὶ διώρισται τοῖς λόγοις ἐπὶ πλέον*—first, *τὸ διαπορεῖν*, next, *τὸ διορίζειν*.

and demonstrative procedure: wherein the teacher lays down principles which he requires the learner to admit, and then deduces from them, by syllogisms constructed in regular form, consequences indisputably binding on all who have admitted the principles. But though Aristotle thus distinguishes Dialectic from Philosophy, he at the same time declares it to be valuable as an auxiliary towards the purpose of philosophy, and as an introductory exercise before the didactic stage begins. The philosopher ought to show his competence as a dialectician, by indicating and handling those various difficulties and controversies bearing on his subject, which have already been made known, either in writings or in oral debate.[a]

We thus learn, from the example furnished by Ari-

[a] See Aristot. Topic. i. p. 100, b. 21, p. 101, a. 25, 34-36, b. 2. *Πρὸς δὲ τὰς κατὰ φιλοσοφίαν ἐπιστήμας (χρήσιμος ἡ πραγματεία), ὅτι δυνάμενοι πρὸς ἀμφότερα διαπορῆσαι ῥᾷον ἐν ἑκάστοις κατοψόμεθα τἀληθές τε καὶ τὸ ψεῦδος*, p. 105, b. 30. *Πρὸς μὲν οὖν φιλοσοφίαν κατ' ἀλήθειαν περὶ αὐτῶν πραγματευτέον, διαλεκτικῶς δὲ πρὸς δόξαν.*

Compare also the commencement of book B. in the Metaphysica, p. 995, a. 28 seq., and, indeed, the whole of book B., which contains a dialectic discussion of numerous *ἀπορίαι*. Aristotle himself refers to it afterwards (Γ. p. 1004, a. 32) in the words *ὅπερ ἐν ταῖς ἀπορίαις ἐλέχθη*.

The Scholia of Alexander on the beginning of the Topica (pp. 251-252, Brandis) are instructive; also his Scholia on p. 105, b. 30, p. 260, a. 24. *διαλεκτικῶς δὲ πρὸς δόξαν, ὡς ἐν ταύτῃ τῇ πραγματείᾳ* (*i. e.* the Topica) *καὶ ἐν τοῖς ῥητορικοῖς, καὶ ἐν τοῖς ἐξωτερικοῖς. καὶ γὰρ ἐν ἐκείνοις πλεῖστα καὶ περὶ τῶν ἠθικῶν καὶ περὶ τῶν φυσικῶν ἐνδόξως λέγεται.*

We see here that Alexander understands by the *exoteric* the dialectic handling of opinions on physics and ethics.

In the Eudemian Ethica also (i. 8, p. 1217, b. 16) we find *ἐπέσκεπται δὲ πολλοῖς περὶ αὐτοῦ τρόποις, καὶ ἐν τοῖς ἐξωτερικοῖς λόγοις καὶ ἐν τοῖς κατὰ φιλοσοφίαν*, where we have the same antithesis in other words—Exoteric or Dialectic *versus* Philosophical or Didactic. Compare a clear statement in Simplikius (Schol. ad Physic. p. 364, b. 19). *Πρῶτον μὲν λογικῶς ἐπιχειρεῖ, τούτεστι πιθανῶς καὶ ἐνδόξως, καὶ ἔτι κοινότερόν πως καὶ διαλεκτικώτερον. ἡ γὰρ διαλεκτικὴ ἡ Ἀριστοτέλους κοινή ἐστι μέθοδος περὶ παντὸς τοῦ προτεθέντος ἐξ ἐνδόξων συλλογιζομένη—τὸ γὰρ λογικὸν ὡς κοινὸν εἴωθεν ἀντιδιαστέλλειν τῷ οἰκείῳ καὶ κατὰ φύσιν τοῦ πράγματος καὶ ἀποδεικτικῷ.*

stotle himself, what he means by "exoteric discourses." The epithet means literally, *extraneous to, lying on the outside of*; in the present case, on the outside of philosophy, considered in its special didactic and demonstrative march.[a] Yet what thus lies outside philosophy, is nevertheless useful as an accompaniment and preparation for philosophy. We shall find Aristotle insisting upon this in his Topica and Analytica; and we shall also find him introducing the exoteric treatment into his most abstruse philosophical treatises (the Physica is one of the most abstruse) as an accompaniment and auxiliary — a dialectic survey of opinions, puzzles, and controverted points, before he begins to lay down and follow out affirmative principles of his own. He does this not only throughout the Physica (in several other passages besides that which I have just cited),[b] but also in the Metaphysica, the treatises De Animâ, De Generatione et Corruptione, &c.

[a] We find the epithet ἐξωτερικὸς used once by Aristotle, not in conjunction with λόγοι but, with πράξεις, designating those acts which are performed with a view to some ulterior and extraneous end (*τῶν ἀποβαινόντων χάριν*, as contrasted with πράξεις αὐτοτελεῖς—οἰκεῖαι): Polit. vii. p. 1325, b. 22-29. σχολῇ γὰρ ἂν ὁ θεὸς ἔχοι καλῶς καὶ πᾶς ὁ κόσμος, οἷς οὐκ εἰσὶν ἐξωτερικαὶ πράξεις παρὰ τὰς οἰκείας τὰς αὐτῶν. In the Eudemian Ethics the phrase τοῖς ἀλλοτρίοις λόγοις σοφίζονται is used much in the same sense as τοῖς ἐξωτερικοῖς λόγοις: *i. e.* opposed to τοῖς οἰκείοις—to that which belongs specially to the scientific determination of the problem (Ethic. Eudem. i. p. 1218, b. 18).

The phrase διὰ τῶν ἐξωτερικῶν λόγων, in Aristot. Physic. iv. 10, p. 217, b. 31, and the different phrase ἐκ τῶν εἰωθότων λόγων λέγεσθαι, in Phys. vi. 2, p. 233, a. 13, appear to have the same meaning and reference. Compare Prantl not. ad Arist. Phys. p. 501.

[b] If we turn to the beginning of book iv. of the Physica, where Aristotle undertakes to examine Τόπος, *Place*, we shall see that he begins by a dialectic handling of ἀπόριαι, exactly analogous to that which he himself calls ἐξωτερικοὶ λόγοι, when he proceeds to examine Χρόνος, *Time*: see Physica, iv. pp. 208, a. 32-35; 209, a. 30; 210, a. 12, b. 31. He does the like also about Κενόν, *Vacuum*, p. 213. a. 20, b. 28, and about Ἄπειρον, *Infinitum*, iii. p. 204, b. 4 (with the Scholia of Simplikius, p. 364, b. 20, Br.).

Compare the Scholion of Simplikius ad Physica (i. p. 329, b. 1, Br.)—Ἴσως δὲ (Simplikius uses this

Having thus learnt to understand, from one distinct passage of Aristotle himself, what he means by "exoteric discourses," we must interpret by the light of this analogy the other indistinct passages in which the phrase occurs. We see clearly that in using the phrase, he does not of necessity intend to refer to any other writings of his own—nor even to any other writings at all. He may possibly mean this; but we cannot be sure of it. He means by the phrase, a dialectic process of turning over and criticizing diverse opinions and probabilities: whether in his own writings, or in those of others, or in no writings at all, but simply in those oral debates which his treatise called Topica presupposes—this is a point which the phrase itself does not determine. He *may* mean to allude, in some cases where he uses the phrase, to his own lost dialogues; but he may also allude to Platonic and other dialogues, or to colloquies carried on orally by himself with his pupils, or to oral debates on intellectual topics between other active-minded men. When Bernays refers "exoteric discourse" to the lost Aristotelian Dialogues; when Madvig, Zeller, Torstrick, Forchhammer, and others, refer it to the contemporary oral dialectic[*]—I think

indecisive word ἴσως) ὅτι ἡ ἐφ' ἑκάτερα ἀπορία τοῦ λόγου ἐξωτερική τις ἦν, ὡς Εὔδημός φησι, διαλεκτικὴ μᾶλλον οὖσα, with this last Scholion, on p. 364, b. 20, which describes the same dialectic handling, though without directly calling it *exoteric*.

[*] Ueberweg (Geschichte der Philos. des Alterthums, vol. i. § 46, p. 127, 2nd ed.) gives a just and accurate view of ἐξωτερικοὶ λόγοι, as conceived by Aristotle. See also the dissertation of Buhle, prefixed to his unfinished edition of Aristotle, De Aristotelis Libris Exotericis et Acroamaticis, pp. 107-152—which discusses this subject copiously, and gives a collection both of the passages and comments which bear upon it. It is instructive, though his opinion leans too much towards the supposition of a double doctrine. Bernays, in his dissertation, Die Dialoge des Aristoteles, maintains that by *exoteric books* are always meant the lost dialogues of Aristotle; and he employs much reasoning to refute the supposition of Madvig (Excurs. VII. ad Cicero, de Fin. p. 861), of Torstrick (ad Aristotel. de Animâ, p. 123), and also

that neither of these explanations is in itself inadmissible. The context of each particular passage must decide which of the two is the more probable. We cannot go farther, in explaining the seven doubtful passages where Aristotle alludes to the "exoteric discourses," than to understand the general character and scope of the reasonings which he thus designates. Extra-philosophical, double-sided, dialectic, is in general (he holds) insufficient by itself, and valuable only as a preparation and auxiliary to the didactic process. But there are some particular points on which such dialectic leaves a result sufficient and satisfactory, which can be safely accepted as the basis of future deduction. These points

of Zeller, that by exoteric discourses are not meant any writings at all, but simply the colloquies and debates of cultivated men, apart from the philosophical schools. On the other hand, Forchhammer has espoused this last-mentioned opinion, and has defended it against the objections of Bernays (Forchhammer, Aristoteles und die exoterischen Reden, p. 16, seq.). The question is thus fully argued on both sides. To me it seems that each of the two opinions is partially right, and neither of them exclusively right. "Exoteric discourse," as I understand it, might be found both in the Aristotelian dialogues, and in the debates of cultivated men out of the schools, and also in parts of the Aristotelian akroamatic works. The argument of Bernays (p. 36, seq.), that the points which Aristotle alludes to as having been debated and settled in exoteric discourses, were too abstruse and subtle to have been much handled by cultivated men out of the schools, or (as he expresses it) in the *salons* or coffee-houses (or what corresponded thereto) at Athens—this argument seems to me untenable. We know well, from the Topica of Aristotle, that the most abstruse subjects were handled dialectically, in a manner which he called extra-philosophical; and that this was a frequent occupation of active-minded men at Athens. To discuss these matters in the way which he calls *πρὸς δόξαν*, was more frequent than to discuss them *πρὸς ἀλήθειαν*.

Zell remarks (ad Ethica Nikom. i. 13), after referring to the passage in Aristotle's Physica, iv. 10 (to which I have called attention in a previous note), "quo loco, à Buhlio neglecto, *ἐξωτερικοὶ λόγοι* idem significant quod alibi *κοιναὶ δόξαι*, *ἐνδοξότες λόγοι*, vel *τὰ λεγόμενα*: quæ semper, priusquam suas rationes in disputando proponat, disquirere solet Aristoteles. Vide supra, ad cap. viii. 1." I find also in Weisse (Translation of and Comment on the Physica of Aristotle, p. 517) a fair explanation of what Aristotle really means by *exoteric*; an explanation, however, which Ritter sets aside, in my judgment erroneously (Geschichte der Philosophie, vol. iii. p. 23).

he indicates in the passages above cited; without informing us more particularly whether the dialectic was written or spoken, and whether by himself or by others.[a]

From the time of Cicero downward, a distinction has been drawn between some books of Aristotle which were exoteric, and others that were not so; these last being occasionally designated as *akroamatic*. Some modern critics have farther tried to point out which, among the preserved works of Aristotle, belonged to each of these heads. Now there existed, doubtless, in the days of Cicero, Strabo, Plutarch, and Gellius, books of Aristotle properly called *exoteric*, *i.e.* consisting almost entirely of exoteric discourse and debate; though whether Aristotle himself would have spoken of an exoteric *book*, I have some doubt. Of such a character were his Dialogues. But all the works designated as akroamatic (or non-exoteric) must probably have contained a certain admixture of "exoteric discourse"; as the Physica (*Φυσικὴ Ἀκρόασις*) and the Metaphysica are seen to contain now. The distinction indicated by Cicero would thus be really between one class of works, wherein "exoteric discourse" was exclusive or paramount,—and another, in which it was partially introduced, subordinate to some specified didactic purpose.[b]

[a] Thus, for example, the passage in the Ethica Nikom. i. 13, p. 1102, a. 26. *λέγεται δὲ περὶ αὐτῶν καὶ ἐν τοῖς ἐξωτερικοῖς λόγοις ἀρκούντως ἔνια, καὶ χρηστέον αὐτοῖς*, is explained in the Paraphrase of the Pseudo-Andronikus as referring to oral colloquy of Aristotle himself with pupils or interlocutors; and this *may* possibly be a correct explanation.

[b] To this extent I go along with the opinion expressed by Weisse in his translation of the Physica of Aristotle, p. 517: "Dass dieser Gegensatz kein absoluter von zwei durchaus getrennten Bücherclassen ist, sondern dass ein und dasselbe Werk zugleich *exoterisch* und *esoterisch* sein konnte; und zweitens, dass *exoterisch* überhaupt dasjenige heisst, was nicht in den positiv-dogmatischen Zusammenhang der Lehre des Philosophen unmittelbar als Glied eintritt." But Weisse goes on afterwards to give a different opinion (about the meaning of *exoteric* books), conformable to what I have cited in a previous note from Sepulveda; and in that I do not

To this last class belong all the works of Aristotle that we possess at present. Cicero would have found none of them corresponding to his notion of an exoteric book.

To understand fully the extent comprehended by the word *exoteric*, we must recollect that its direct and immediate meaning is negative—*extraneous to philosophy*, and suitable to an audience not specially taught or prepared for philosophy. Now this negative characteristic belongs not merely to dialectic (as we see it in the example above cited from the Aristotelian Physica), but also to rhetoric or rhetorical argument. We know that, in Aristotle's mind, the rhetorical handling and the dialectical handling, are placed both of them under the same head, as dealing with opinions rather than with truth.[a] Both the one and the other are

concur. However, he remarks that the manner in which Aristotle handles the Abstracta, *Place* and *Infinite*, is just the same as that which he declares to be *exoteric* in the case of *Time*. The distinction drawn by Aulus Gellius (xx. 5) is not accurate: "Ἐξωτερικὰ dicebantur, quæ ad rhetoricas meditationes, facultatem argutiarum, civiliumque rerum notitiam conducebant. Ἀκροατικὰ autem vocabantur, in quibus philosophia remotior subtiliorque agitabatur; quæque ad naturæ contemplationes, disceptationesque dialecticas pertinebant." It appears to me that *disceptationes dialecticæ* ought to be transferred to the department *ἐξωτερικά*, and that *civilium rerum notitia* belongs as much to *ἀκροατικὰ* as to *ἐξωτερικά*. M. Ravaisson has discussed this question very ably and instructively, Essai sur la Métaphysique d'Aristote, pp. 224-244. He professes indeed to defend the opinion which I have cited from Sepulveda, and which I think erroneous; but his reasonings go really to the support of the opinion given in my text. He remarks, justly, that the dialogues of Plato (at least all the dialogues of Search) are specimens of exoteric handling; of which attribute Forchhammer speaks as if it were peculiar to the Charmides (Aristot. Exot. Reden. p. 22). Brandis (Aristoteles, p. 105) thinks that when Aristotle says in the Politica, vii. 1, p. 1323, a. 21: *νομίσαντας οὖν ἱκανῶς πολλὰ λέγεσθαι καὶ τῶν ἐν τοῖς ἐξωτερικοῖς λόγοις περὶ τῆς ἀρίστης ζώης, καὶ νῦν χρηστέον αὐτοῖς*, he intends to designate the Ethica. It may be so; yet the Politica seems a continuation of the Ethica: moreover, even in the Ethica, we find reference made to previous discussions, *ἐν τοῖς ἐξωτερικοῖς λόγοις* (Eth. N. I. 13).

[a] See the first two chapters of Aristotle's Rhetorica, especially pp. 1355 a. 24-35, 1358 a. 5, 11, 25, also p. 1404 a. 1.: *ὅλως οὔσης πρὸς δόξαν τῆς πραγματείας τῆς περὶ τὴν ῥητορικήν,*

parted off from the didactic or demonstrative march which leads to philosophical truth; though dialectic has a distant affinity with that march, and is indeed available as an auxiliary skirmisher. The term *exoteric* will thus comprehend both rhetorical argument and dialectical argument.[a] Of the latter, we have just seen a specimen extracted from the Physica; of the former, I know no specimen remaining, but there probably were many of them in the Aristotelian dialogues now lost—that which was called 'Eudemus,' and others. With these dialogues Cicero was probably more familiar than with any other composition of Aristotle. I think it highly probable that Aristotle alludes to the dialogues in some of the passages where he refers to "exoteric discourses." To that extent I agree with Bernays; but I see no reason to believe (as he does) that the case is the same with all the passages, or that the epithet is to be understood *always* as implying one of these lost Aristotelian dialogues.[b]

which is exactly what he says also about Dialectic, in the commencement of the Topica.

[a] Octavianus Ferrarius observes, in his treatise De Sermonibus Exotericis, (Venet. 1575), p. 24: "Quod si Dialecticus et Rhetor inter se mutant, ut aiunt, ita ut Dialecticus Rhetorem et Rhetor Dialecticum vicissim induat—de his ipsis veteribus Dialecticis minime nobis dubitandum est, quin iidem dialectice simul et rhetorice loqui in utramque partem potuerint. Nec valde mirum debet hoc videri; libros enim exotericos prope solos habuerunt: qui cum scripti essent (ut posterius planum faciam) dialectico more, illorum lectio cum libris peperit philosophos congruentes."—Ferrari adverts well to the distinction between the philosopher and the dialectician (*sensu Aristotelico*), handling often the same subjects, but in a different way: between the οἰκεῖαι ἀρχαί, upon which didactic method rested, and the δόξαι, or diverse opinions, each countenanced by more or less authority, from which dialectic took its departure (pp. 36, 86, 89).

[b] I agree very much with the manner in which Bernays puts his case, pp. 79, 80, 92, 93: though there is a contradiction between p. 80 and p. 92, in respect to the taste and aptitude of the exterior public for dialectic debate; which is affirmed in the former page, denied in the latter. But the doctrine asserted in the pages just indicated amounts only to this—that the dialogues were *included in* Aristotle's phrase, ἐξωτερικοὶ λόγοι; which appears to me true.

There grew up, in the minds of some commentators, a supposition of "exoteric doctrine" as denoting what Aristotle promulgated to the public, contrasted with another secret or mystic doctrine reserved for a special few, and denoted by the term *esoteric*; though this term is not found in use before the days of Lucian.[a] I believe the supposition of a double doctrine to be mistaken in regard to Aristotle; but it is true as to the Pythagoreans, and is not without some colour of truth even as to Plato. That Aristotle employed one manner of explanation and illustration, when discussing with advanced pupils, and another, more or less different, when addressing an unprepared audience, we may hold as certain and even unavoidable; but this does not amount to a double positive doctrine. Properly speaking, indeed, the term "exoteric" (as I have just explained it out of Aristotle himself) does not designate, or even imply, any positive doctrine at all. It denotes a many-sided controversial debate, in which numerous points are canvassed and few settled; the express purpose being to bring into full daylight the perplexing aspects of each. There are indeed a few exceptional cases, in which "exoteric discourse" will itself have thrown up a tolerably trustworthy result: these few (as I have above shown) Aristotle occasionally singles out and appeals to. But as a general rule, there is no *doctrine* which can properly be called *exoteric*: the "exoteric discourse" suggests many new puzzles, but terminates without any solution at all. The doctrine, whenever any such is proved, emerges out of the didactic process which follows.

[a] Luc. Vit. Auct. 26.

CHAPTER III.

CATEGORIÆ.

OF the prodigious total of works composed by Aristotle, I have already mentioned that the larger number have perished. But there still remain about forty treatises, of authenticity not open to any reasonable suspicion, which attest the grandeur of his intelligence, in respect of speculative force, positive as well as negative, systematizing patience, comprehensive curiosity as to matters of fact, and diversified applications of detail. In taking account of these treatises, we perceive some in which the order of sequence is determined by assignable reasons; as regards others, no similar grounds of preference appear. The works called 1. De Cœlo; 2. De Generatione et Corruptione; 3. Meteorologica,—are marked out as intended to be studied in immediate succession, and the various Zoological treatises after them. The cluster entitled Parva Naturalia is complementary to the treatise De Animâ. The Physica Auscultatio is referred to in the Metaphysica, and discusses many questions identical or analogous, standing in the relation of prior to a posterior, as the titles indicate; though the title 'Metaphysica' is not affixed or recognized by Aristotle himself, and the treatise so called includes much that goes beyond the reach of the Physica. As to the treatises on Logic, Rhetoric, Ethics, Politics, Poetics, Mechanics, &c., we are left to fix for ourselves the most convenient order of study. Of no one among them can we assign the date of com-

position or publication. There are indeed in the Rhetorica, Politica, and Meteorologica, various allusions which must have been written later than some given events of known date; but these allusions may have been later additions, and cannot be considered as conclusively proving, though they certainly raise a presumption, that the entire work was written subsequently to those events.

The proper order in which the works of Aristotle ought to be studied, (like the order proper for studying the Platonic dialogues),[a] was matter of debate from the time of his earliest editors and commentators, in the century immediately preceding the Christian era.

[a] Scholia, p. 25, b. 37, seq. Br.; p. 321, b. 30; Diogen. L. iii. 62. The order in which the forty-six Aristotelian treatises stand printed in the Berlin edition, and in other preceding editions, corresponds to the tripartite division, set forth by Aristotle himself, of sciences or cognitions generally: 1. Theoretical; *θεωρητικαί*. 2. Practical; *πρακτικαί*. 3. Constructive or Technical; *ποιητικαί*.

Patricius, in his Discussiones Peripateticæ, published in 1581 (tom. i. lib. xiii. p. 173), proclaims himself to be the first author who will undertake to give an account of Aristotle's philosophy *from Aristotle himself* (instead of taking it, as others before him had done, from the Aristotelian expositors, Andronikus, Alexander, Porphyry, or Averroes); likewise, to be the first author who will consult *all* the works of Aristotle, instead of confining himself, as his predecessors had done, to a select few of the works. Patricius then proceeds to enumerate those works upon which alone the professors "in Italicis scholis" lectured, and to which the attention of all readers was restricted. 1. The Predicabilia, or Eisagoge of Porphyry. 2. The Categoriæ. 3. The De Interpretatione. 4. The Analytica Priora; but only the four first chapters of the first book. 5. The Analytica Posteriora; but only a few chapters of the first book; nothing of the second. 6. The Physica; books first and second; then parts of the third and fourth; lastly, the eighth book. 7. The De Cœlo; books first and second. 8. The De Generatione et Corruptione; books first and second. 9. The De Animâ; all the three books. 10. The Metaphysica; books Alpha major, Alpha minor, third, sixth, and eleventh. "Idque, quadriennio integro, quadruplicis ordinis Philosophi perlegunt auditoribus. De reliquis omnibus tot libris, mirum silentium."

Patricius expressly remarks that neither the Topica nor the De Sophisticis Elenchis was touched in this full course of four years. But he does not remark—what to a modern reader will seem more surprising—that neither the Ethica, nor the Politica, nor the Rhetorica, is included in the course.

Boêthus the Sidonian (Strabo's contemporary and fellow-student) recommended that the works on natural philosophy and physiology should be perused first; contending that these were the easiest, the most interesting, and, on the whole, the most successful among all the Aristotelian productions. Some Platonists advised that the ethical treatises should be put in the front rank, on the ground of their superior importance for correcting bad habits and character; others assigned the first place to the mathematics, as exhibiting superior firmness in the demonstrations. But Andronikus himself, the earliest known editor of Aristotle's works, arranged them in a different order, placing the logical treatises at the commencement of his edition. He considered these treatises, taken collectively, to be not so much a part of philosophy as an *Organon* or instrument, the use of which must be acquired by the reader before he became competent to grasp or comprehend philosophy; as an exposition of method rather than of doctrine.[a]

[a] Aristot. Topica, i. p. 104, b. 1, with the Scholia of Alexander, p. 259, a. 48 Br.; Scholia ad Analyt. Prior. p. 140, a. 47, p. 141, a. 25; also Schol. ad Categor. p. 36, a., p. 40, a., 8. This conception of the Organon is not explicitly announced by Aristotle, but seems quite in harmony with his views. The contemptuous terms in which Prantl speaks of it (Gesch. der Logik, i. 136), as a silly innovation of the Stoics, are unwarranted.

Aristotle (Metaph. E. i. p. 1025, b. 26) classifies the sciences as *θεωρητικαί, πρακτικαί, ποιητικαί*; next he subdivides the first of the three into *φυσική, μαθηματική, πρώτη φιλοσοφία*. Brentano, after remarking that no place in this distribution is expressly provided for Logic, explains the omission as follows: "Diese auffallende Erscheinung erklärt sich daraus, dass diese [the three above-named theoretical sciences] allein das reelle Sein betrachten, und nach den drei Graden der Abstraktion in ihrer Betrachtungsweise verschieden, geschieden werden; während die Logik das bloss rationelle Sein, das *ὂν ὡς ἀληθές*, behandelt." (Ueber die Bedeutung des Seienden nach Aristoteles, p. 39.)—Investigations *περὶ τῆς ἀληθείας, ὃν τρόπον δεῖ ἀποδέχεσθαι* are considered by Aristotle as belonging to *τὰ Ἀναλυτικά*; enquiries into method in the first instance, and into doctrine chiefly with a view to method (Metaphys. Γ. p. 1005, b. 2). In Metaphys. Γ. p. 1005, b. 7, he declares that these enquiries into method, or analysis of the *principia* of syllogistic reasoning, belong to the Philosophia Prima (com-

From the time of Andronikus downward, the logical treatises have always stood first among the written or printed works of Aristotle. They have been known under the collective title of the 'Organon,' and as such it will be convenient still to regard them.[a]

These treatises are six in number:—1. Categoriæ;[b] 2. De Interpretatione, or De Enunciatione; 3. Analytica Priora; 4. Analytica Posteriora; 5. Topica; 6. De Sophisticis Elenchis. This last short treatise—De Sophisticis Elenchis—belongs naturally to the Topica which precedes it, and of which it ought to be ranked as the ninth or concluding book. Waitz has printed it as such in his edition of the Organon; but as it has been generally known with a separate place and title, I shall not depart from the received understanding.

Aristotle himself does not announce these six treatises as forming a distinct aggregate, nor as belonging to one and the same department, nor as bearing one comprehensive name. We find indeed in the Topica references to the Analytica, and in the Analytica references to the Topica. In both of them, the ten Categories are assumed and presupposed, though the treatise describing them is not expressly mentioned:

pare Metaphys. Z. 12, p. 1037, b. 8). Schwegler in his Commentary (p. 161) remarks that this is one of the few passages in which Aristotle indicates the relation in which Logic stands to Metaphysics, or First Philosophy. The question has been started among his Ἀπορίαι, Metaph. B. 2, p. 999, b. 30.

[a] Respecting the title of Organon, which was sometimes applied to the Analytica Posteriora only, see Waitz ad Organ. ii. p. 294.

[b] Some eminent critics, Prantl and Bonitz among them, consider the treatise Categoriæ not to be the work of Aristotle. The arguments on which this opinion rests are not convincing to me; and even if they were, the treatise could not be left out of consideration, since the *doctrine* of the Ten Categories is indisputably Aristotelian. See Zeller, Die Phil. der Griech. ii. 2, pp. 50, 51, 2nd ed.

to both also, the contents of the treatise De Interpretatione or Enunciatione, though it is not named, are indispensable. The affinity and interdependence of the six is evident, and justifies the practice of the commentators in treating them as belonging to one and the same department. To that department there belonged also several other treatises of Aristotle, not now preserved, but specified in the catalogue of his lost works; and these his disciples Theophrastus, Eudemus, and Phanias, had before them. As all these three disciples composed treatises of their own on the same or similar topics,[a] amplifying, elucidating, or controverting the views of their master, the Peripatetics immediately succeeding them must have possessed a copious logical literature, in which the six treatises now constituting the Organon appeared as portions, but not as a special aggregate in themselves.

Of the two treatises which stand first in the Aristotelian Organon—the Categoriæ and the De Interpretatione—each forms in a certain sense the complement of the other. The treatise De Interpretatione handles Propositions (combinations of terms in the way of Subject and Predicate), with prominent reference to the specific attribute of a Proposition—the being true or false, the object of belief or disbelief; the treatise Categoriæ deals with these same Terms (to use Aristotle's own phrase) pronounced without or apart from such combination. In his definition of the simple Term, the Proposition is at the same time assumed to be foreknown as the correlate or antithesis to it.[b]

[a] Ammonius ap. Schol. p. 28, a. 41; p. 33, b. 27, Br.

[b] Τὰ ἄνευ συμπλοκῆς λεγόμενα—τῶν κατὰ μηδεμίαν συμπλοκὴν λεγομένων (Categ. p. 1, a. 16, b. 25). See Schol. ad Aristot. Physica, p. 323, b. 25, Br.; and Bonitz ad Aristotel. Metaph. (A. p. 987) p. 90.

The Categories of Aristotle appear to have formed one of the most pro-

The first distinction pointed out by Aristotle among simple, uncombined Terms, or the things denoted thereby, is the Homonymous, the Synonymous, and the Paronymous. *Homonymous* are those which are called by the same name, used in a different sense or with a different definition or rational explanation. *Synonymous* are those called by the same name in the same sense. *Paronymous* are those called by two names, of which the one is derived from the other by varying the inflexion or termination.[a]

We can hardly doubt that it was Aristotle who first gave this peculiar distinctive meaning to the two words Homonymous and Synonymous, rendered in modern phraseology (through the Latin) *Equivocal* and *Univocal.* Before his time this important distinction between different terms had no technical name to designate it. The service rendered to Logic by introducing such a technical term, and by calling attention to the lax mode of speaking which it indicated, was great. In every branch of his writings Aristotle perpetually reverts to it, applying it to new cases, and especially to those familiar universal words uttered most freely and frequently, under the common persuasion that their meaning is not only thoroughly known but constant and uniform. As a general fact, students are now well

minent topics of the teaching of Themistius: rebutting the charge, advanced both against himself, and, in earlier days, against Sokrates and the Sophists, of rendering his pupils presumptuous and conceited, he asks, *ἠκούσατε δὲ αὖ τινος τῶν ἐμῶν ἐπιτηδείων ὑψηλογουμένου καὶ βριθυομένου ἐπὶ τοῖς συνωνύμοις ἢ ὁμωνύμοις ἢ παρωνύμοις*; (Orat. xxiii. p. 351.)

Reference is made (in the Scholia on the Categoriæ, p. 43, b. 19) to a classification of names made by Speusippus, which must have been at least as early as that of Aristotle; perhaps earlier, since Speusippus died in 339 B.C. We do not hear enough of this to understand clearly what it was. Boëthus remarked that Aristotle had omitted to notice some distinctions drawn by Speusippus on this matter, Schol. p. 43, a. 29. Compare a remark in Aristot. De Cœlo, i. p. 280, b. 2.

[a] Aristot. Categor. p. 1, a. 1-15.

acquainted with this source of error, though the stream of particular errors flowing from it is still abundant, ever renewed and diversified. But in the time of Aristotle the source itself had never yet been pointed out emphatically to notice, nor signalized by any characteristic term as by a beacon. The natural bias which leads us to suppose that one term always carries one and the same meaning, was not counteracted by any systematic warning or generalized expression. Sokrates and Plato did indeed expose many particular examples of undefined and equivocal phraseology. No part of the Platonic writings is more valuable than the dialogues in which this operation is performed, forcing the respondent to feel how imperfectly he understands the phrases constantly in use. But it is rarely Plato's practice to furnish generalized positive warnings or systematic distinctions. He has no general term corresponding to homonymous or equivocal; and there are even passages where (under the name of Prodikus) he derides or disparages a careful distinctive analysis of different significations of the same name. To recognize a class of equivocal terms and assign thereto a special class-name, was an important step in logical procedure; and that step, among so many others, was made by Aristotle.*

* In the instructive commentary of Dexippus on the Categoriæ (contained in a supposed dialogue between Dexippus and his pupil Seleukus, of which all that remains has been recently published by Spengel, Munich, 1859), that commentator defends Aristotle against some critics who wondered why he began with these Ante-predicaments (*ὁμώνυμα, συνώνυμα*, &c.), instead of proceeding at once to the Predicaments or Categories themselves. Dexippus remarks that without understanding this distinction between *equivoca* and *univoca*, the Categories themselves could not be properly appreciated; for Ens—*τὸ ὄν*—is homonymous in reference to all the Categories, and not a Summum Genus, comprehending the Categories as distinct species under it; while each Category is a Genus in reference to its particulars. Moreover, Dexippus observes that this distinction of homonyms and synonyms was altogether unknown and never self-suggested to

Though Aristotle has professed to distinguish between terms implicated in predication, and terms not so implicated,[a] yet when he comes to explain the functions of the latter class, he considers them in reference to their functions as constituent members of propositions. He immediately begins by distinguishing four sorts of matters (*Entia*): That which is affirmable of a Subject, but is not in a Subject; That which is in a Subject, but is not affirmable of a Subject; That which is both in a Subject, and affirmable of a Subject; That which is neither in a Subject, nor affirmable of a Subject.[b]

This fundamental quadruple distinction of *Entia*, which serves as an introduction to the ten Categories or Predicaments, belongs to words altogether according to their relative places or functions in the proposition; the meanings of the words being classified accordingly. That the learner may understand it, he ought properly to be master of the first part of the treatise De Interpretatione, wherein the constituent elements of a proposition are explained: so intimate is the connection between that treatise and this.

the ordinary mind (*ὅσων γὰρ ἔννοιαν οὐκ ἔχομεν, τούτων πρόληψιν οὐκ ἔχομεν*, p. 20), and therefore required to be brought out first of all at the beginning; whereas the Post-predicaments (to which we shall come later on) were postponed to the end, because they were cases of familiar terms loosely employed. (See Spengel, Dexipp. pp. 19, 20, 21.)

[a] Aristot. Categor. p. 1, a. 16. *τῶν λεγομένων τὰ μὲν κατὰ συμπλοκὴν λέγεται, τὰ δ' ἄνευ συμπλοκῆς· τὰ μὲν οὖν κατὰ συμπλοκὴν οἷον ἄνθρωπος τρέχει, ἄνθρωπος νικᾷ· τὰ δ' ἄνευ συμπλοκῆς οἷον ἄνθρωπος, βοῦς, τρέχει, νικᾷ.*

It will be seen that the meaning and function of the single word can only be explained relatively to the complete proposition, which must be assumed as foreknown.

That which Aristotle discriminates in this treatise, in the phrases—*λέγεσθαι κατὰ συμπλοκὴν* and *λέγεσθαι ἄνευ συμπλοκῆς*, is equivalent to what we read in the De Interpretatione (p. 16, b. 27, p. 17 a. 17) differently expressed, *φωνὴ σημαντικὴ ὡς κατάφασις* and *φωνὴ σημαντικὴ ὡς φάσις*.

[b] Aristot. Categor. p. 1, a. 20.

The classification applies to *Entia* (Things or Matters) universally, and is thus a first step in Ontology. He here looks at Ontology in one of its several diverse aspects—as it enters into predication, and furnishes the material for Subjects and Predicates, the constituent members of a proposition.

Ontology, or the Science of *Ens quatenus Ens*, occupies an important place in Aristotle's scientific programme; bearing usually the title of First Philosophy, sometimes Theology, though never (in his works) the more modern title of Metaphysica. He describes it as the universal and comprehensive Science, to which all other sciences are related as parts or fractions. Ontology deals with *Ens* in its widest sense, as an *Unum* not generic but analogical—distinguishing the derivative varieties into which it may be distributed, and setting out the attributes and accompaniments of *Essentia* universally; while other sciences, such as Geometry, Astronomy, &c., confine themselves to distinct branches of that whole;[a] each having its own separate class of *Entia* for special and exclusive study. This is the characteristic distinction of Ontology, as Aristotle conceives it; he does not set it in antithesis to Phenomenology, according to the distinction that has become current among modern metaphysicians.

Now *Ens* (or *Entia*), in the doctrine of Aristotle, is not a synonymous or univocal word, but an homonymous or equivocal word; or, rather, it is something between the two, being equivocal, with a certain quali-

[a] Aristot. Metaphys. Γ. p. 1003, a. 21, 25-33, E. p. 1025, b. 8. *ἔστιν ἐπιστήμη τις ἡ θεωρεῖ τὸ ὂν ᾗ ὄν καὶ τὰ τούτῳ ὑπάρχοντα καθ' αὑτό· αὕτη δ' ἐστὶν οὐδεμιᾷ τῶν ἐν μέρει λεγομένων ἡ αὐτή· οὐδεμία γὰρ τῶν ἄλλων ἐπισκοπεῖ καθόλου περὶ τοῦ ὄντος ᾗ ὄν, ἀλλὰ μέρος αὐτοῦ τι ἀποτεμόμεναι περὶ τούτου θεωροῦσι τὸ συμβεβηκός*, &c. Compare p. 1005, a. 2-14.

fication. Though not a *Summum Genus*, *i.e.* not manifesting throughout all its particulars generic unity, nor divisible into species by the addition of well-marked essential *differentiæ*, it is an analogical aggregate, or a *Summum Analogon*, comprehending under it many subordinates which bear the same name from being all related in some way or other to a common root or *fundamentum*, the relationship being both diverse in kind and nearer or more distant in degree. The word *Ens* is thus homonymous, yet in a qualified sense. While it is not univocal, it is at the same time not absolutely equivocal. It is *multivocal* (if we may coin such a word), having many meanings held together by a multifarious and graduated relationship to one common *fundamentum*.[a] *Ens* (or *Entia*) in this widest sense, is the theme of Ontology or First Philosophy, and is looked at by Aristotle in four different principal aspects.[b]

1. Τὸ ὂν κατὰ συμβεβηκός—*Ens per Accidens*—*Ens* accidental, or rather concomitant, either as rare and exceptional attribute to a subject, or along with some other accident in the same common subject.

[a] Simplikius speaks of these Analoga as τὸ μέσον τῶν τε συνωνύμων καὶ τῶν ὁμωνύμων, τὸ ἀφ' ἑνός, &c. Schol. ad Categor. p. 69, b. 29, Brand. See also Metaphys. Z. p. 1030, a. 34.

Dexippus does not recognize, formally and under a distinct title, this intermediate stage between συνώνυμα and ὁμώνυμα. He states that Aristotle considered Ens as ὁμώνυμον, while other philosophers considered it as συνώνυμον (Dexippus, p. 26, book i. sect. 19, ed. Spengel). But he intimates that the ten general heads called Categories have a certain continuity and interdependence (συνέχειαν καὶ ἀλληλουχίαν) each with the others, branching out from οὐσία in ramifications more or less straggling (p. 48, book ii. sects. 1, 2, Spengel). The list (he says, p. 47) does not depend upon διαίρεσις (generic division), nor yet is it simple enumeration (ἀπαρίθμησις) of incoherent items. In the Physica, vii. 4, p. 249, a. 23, Aristotle observes: εἰσὶ δὲ τῶν ὁμωνυμιῶν αἱ μὲν πολὺ ἀπέχουσαι αἱ δὲ ἔχουσαί τινα ὁμοιότητα, αἱ δ' ἐγγὺς ἢ γένει ἢ ἀναλογίᾳ, διὸ οὐ δοκοῦσιν ὁμωνυμίαι εἶναι αὗσαι.

[b] Aristot. Metaphys. Δ. p. 1017, a. 7, E. p. 1025, a. 34, p. 1026, a. 33, b. 4; upon which last passage see the note of Bonitz.

2. Τὸ ὂν ὡς ἀληθές, καὶ τὸ μὴ ὂν ὡς ψεῦδος—*Ens*, in the sense of Truth, *Non-Ens*, in the sense of Falsehood. This is the *Ens* of the Proposition; a true affirmation or denial falls under *Ens* in this mode, when the mental conjunction of terms agrees with reality; a false affirmation or denial, where no such agreement exists, falls under *Non-Ens*.[a]

3. Τὸ ὂν δυνάμει καὶ τὸ ὂν ἐνεργείᾳ—*Ens*, potential, actual.

4. Τὸ ὂν κατὰ τὰ σχήματα τῶν κατηγοριῶν—*Ens*, according to the ten varieties of the Categories, to be presently explained.

These four are the principal aspects under which Aristotle looks at the aggregate comprised by the equivocal or multivocal word *Entia*. In all the four branches, the varieties comprised are not species under a common genus, correlating, either as co-ordinate or subordinate, one to the other; they are *analoga*, all having relationship with a common term, but having no other necessary relationship with each other. Aristotle does not mean that these four modes of distributing this vast aggregate, are the only modes possible; for he himself sometimes alludes to other modes of distributions.[b] Nor would he maintain that the four distributions were completely distinguished from each other, so that the same subordinate fractions are not comprehended in any two; for on the contrary, the branches overlap each other and coincide to a great degree, especially the first and fourth. But he con-

[a] Aristot. Metaph. E. 4, p. 1027, b. 18, —p. 1028, a. 4. οὐ γάρ ἐστι τὸ ψεῦδος καὶ τὸ ἀληθὲς ἐν τοῖς πράγμασιν—ἀλλ' ἐν διανοίᾳ—οὐκ ἔξω δηλοῦσιν οὐσάν τινα φύσιν τοῦ ὄντος. Also Θ. 10, p. 1051, b. 1: τὸ κυριώτατα δν ἀληθὲς καὶ ψεῦδος. In a Scholion, Alexander remarks: τὸ δὲ ὡς ἀληθῶς δν πάθος ἐστὶ καὶ βούλημα διανοίας, τὸ δὲ ζητεῖν τὸ ἑκάστῳ δοκοῦν οὐ σφόδρα ἀναγκαῖον.

[b] Aristot. Metaph. Γ. p. 1003, a. 33,-b. 10. Compare the able treatise of Brentano, "Ueber die Bedeutung des Seienden nach Aristoteles," pp. 6, 7.

siders the four as discriminating certain distinct aspects of *Entia* or *Entitas*, more important than any other aspects thereof that could be pointed out, and as affording thus the best basis and commencement for the Science called Ontology.

Of these four heads, however, the first and second are rapidly dismissed by Aristotle in the Metaphysica,[a] being conceived as having little reference to real essence, and therefore belonging more to Logic than to Ontology; *i.e.* to the subjective processes of naming, predicating, believing, and inferring rather than to the objective world of Perceivables and Cogitables.[b] It is

[a] Aristot. Metaph. E. p. 1027, b. 16, p. 1028, a. 6.

[b] Aristot. Metaph. Θ. 10, p. 1051, b. 2-15, with Schwegler's Comment, p. 186. This is the distinction drawn by Simplikius (Schol. ad Categ. p. 76, b. 47) between the Organon and the Metaphysica: *Αἱ γὰρ ἀρχαὶ κατὰ μὲν τὴν σημαντικὴν αὐτῶν λέξιν ἐν τῇ λογικῇ πραγματείᾳ δηλοῦνται, κατὰ δὲ τὰ σημαινόμενα ἐν τῇ Μετὰ τὰ Φυσικὰ οἰκείως.*

Τὰ *ὄντα* are equivalent to τὰ *λεγόμενα*, in this and the other logical treatises of Aristotle. Categ. p. 1, a. 16-20, b. 25; Analyt. Prior. i. p. 43, a. 25.

This is the logical aspect of Ontology; that is, Entia are considered as Objects to be named, and to serve as Subjects or Predicates for propositions: every such term having a fixed denotation, and (with the exception of proper names) a fixed connotation, known to speakers and hearers.

Τὰ *λεγόμενα* (or Entia considered in this aspect) are distinguished by Aristotle into two classes: 1. Τὰ *λεγόμενα κατὰ συμπλοκήν, οἷον ἄνθρωπος τρέχει, ἄνθρωπος νικᾷ*. 2. Τὰ *λεγόμενα ἄνευ συμπλακῆς*, (or *κατὰ μηδεμίαν συμπλοκήν*), *οἷον ἄνθρωπος, βοῦς, τρέχει, νικᾷ*.

We are to observe here, that in Logic the Proposition or Enunciation is the Prius Naturâ, which must be presupposed as known before we can understand what the separate terms are (Analytic. Prior. i. p. 24, a. 16): just as the right angle must be understood before we can explain what is an acute or an obtuse angle (to use an illustration of Aristotle; see Metaphys. Z. p. 1035, b. 7). We must understand the entire logical act, called Affirming or Denying, before we can understand the functions of the two factors or correlates with which that act is performed. Aristotle defines the Term by means of the Proposition, *ὅρον δὲ καλῶ εἰς ὃν διαλύεται ἡ πρότασις* (Anal. Pr. i. 24, b. 16).

Τὰ *λεγόμενα*, as here used by Aristotle, coincides in meaning with what the Stoics afterwards called Τὰ *λεκτά*—of two classes: 1. *λεκτὰ αὐτοτελῆ*, one branch of which, *τὰ ἀξιώματα*, are equivalent to the Aristotelian *τὰ κατὰ συμπλοκὴν λεγόμενα*. 2. *λεκτὰ ἐλλιπῆ*, equivalent to *τὰ ἄνευ συμπλοκῆς λεγόμενα* (Diogen. Laert. vii. 43, 44, 63, 64; Sext. Emp.

the third and fourth that are treated in the Metaphysica; while it is the fourth only (*Ens* according to the ten figures of the Categories) which is set forth and elucidated in this first treatise of the Organon, where Aristotle appears to blend Logic and Ontology into one.

Of this mixed character, partly logical, partly ontological, is the first distinction set forth in the Categoriæ — the distinction between matters *predicated of* a Subject, and matters which are *in* a Subject — the Subject itself being assumed as the *fundamentum* correlative to both of them. The definition given of that which is *in* a Subject is ontological: viz., "*In* a Subject, I call that which is in anything, not as a part, yet so that it cannot exist separately from that in which it is."[a] By these two negative characteristics,

adv. Mathemat. viii. 69, 70, 74): equivalent also, seemingly, to τὰ διανοητὰ in Aristotle: ὁ διανοητὸς Ἀριστομένης (Anal. Pr. I. p. 47, b. 22).

Hobbes observes (Computation or Logic, part i. 2, 5): "Nor is it at all necessary that every name should be the name of something. For as these, *a man*, *a tree*, *a stone*, are the names of the things themselves, so the images of a man, of a tree, of a stone, which are represented to men sleeping, have their names also, though they be not things, but only fictions and phantasms of things. For we can remember these; and therefore it is no less necessary that they have names to mark and signify them, than the things themselves. Also this word *future* is a name; but no future thing has yet any being. Moreover, that which neither is, nor has been, nor ever shall or ever can be, has a name—*impossible*. To conclude, this word *nothing* is a name, which yet cannot be name of any thing; for when we subtract two and three from five, and, so nothing remaining, we would call that subtraction to mind, this speech *nothing remains*, and in it the word *nothing*, is not unuseful. And for the same reason we say truly, *less than nothing* remains, when we subtract more from less; for the mind feigns such remains as these for doctrine's sake, and desires, as often as is necessary, to call the same to memory. But seeing every name has some relation to that which is named, though that which we name be not always a thing that has a being in nature, yet it is lawful for doctrine's sake to apply the word *thing* to whatsoever we name; as if it were all one whether that thing be truly existent, or be only feigned."

The Greek neuter gender (τὸ λεγόμενον or τὸ λεκτόν, τὰ λεγόμενα or τὰ λεκτά) covers all that Hobbes here includes under the word *thing*.—Scholia ad Aristot. Physic. I. i. p. 323, a. 21, Brand.: ὀνομάζονται μὲν καὶ τὰ μὴ ὄντα, ὁρίζονται δὲ μόνα τὰ ὄντα.

[a] Aristot. Categ. p. 1, a. 24.

without any mark positive, does Aristotle define what is meant by being *in* a Subject. Modern logicians, and Hobbes among them, can find no better definition for an Accident; though Hobbes remarks truly, that Accident cannot be properly defined, but must be elucidated by examples.[a]

The distinction here drawn by Aristotle between being *predicated of* a Subject, and being *in* a Subject, coincides with that between essential and non-essential predication: all the predicates (including the *differentia*) which belong to the essence, fall under the first division;[b] all those which do not belong to the essence, under the latter. The Subjects—what Aristotle calls the First Essences or Substances, those which are essences or substances in the fullest and strictest meaning of the word—are concrete individual things or persons; such as Sokrates, this man, that horse or tree. These are never employed as predicates at all (except by a distorted and unnatural structure of the proposition, which Aristotle indicates as possible, but declines to take into account); they are always Subjects of different predicates, and are, in the last analysis, the Subjects of all predicates. But besides these First Essences, there are also Second Essences—Species and Genus, which stand to the First Essence in the relation of predicates to a Subject, and to the other Categories in the relation of

[a] Hobbes, Computation or Logic, part i. 3, 3, i. 6, 2, ii. 8, 2-3.

[b] Aristot. Categ. p. 3, a. 20. It appears that Andronikus did not draw the line between these two classes of predicates in the same manner as Aristotle; he included many non-essential predicates in *τὰ καθ' ὑποκειμένου*. See Simplikius, ad Categorias, Basil. 1551, fol. 13, 21, B. Nor was either Alexander or Porphyry careful to observe the distinction between the two classes. See Schol. ad Metaphys. p. 701, b. 23, Br.; Schol. ad De Interpret. p. 106, a. 29, Br. And when Aristotle says, Analyt. Prior. i. p. 24, b. 26, *τὸ δὲ ἐν ὅλῳ εἶναι ἕτερον ἑτέρῳ, καὶ τὸ κατὰ παντὸς κατηγορεῖσθαι θατέρου θάτερον, ταὐτόν ἐστιν*, he seems himself to forget the distinction entirely.

Subjects to predicates.[a] These Second Essences are less of Essences than the First, which alone is an Essence in the fullest and most appropriate sense. Among the Second Essences, Species is more of an Essence than Genus, because it belongs more closely and specially to the First Essence; while Genus is farther removed from it. Aristotle thus recognizes a graduation of *more or less* in Essence; the individual is more Essence, or more complete as an Essence, than the Species, the Species more than the Genus. As he recognizes a First Essence *i.e.* an individual object, (such as Sokrates, this horse, &c.), so he also recognizes an individual accident (this particular white colour, that particular grammatical knowledge) which is *in* a Subject, but is not *predicated of* a Subject; this particular white colour exists *in* some given body, but is not *predicable of* any body.[b]

Respecting the logical distinction, which Aristotle

[a] Categor. p. 2, a. 15, seq. In Aristotle phraseology it is not said that Second Essences are contained in First Essences, but that First Essences are contained in Second Essences, *i. e.* in the species which Second Essences signify. See the Scholion to p. 3, a. 9, in Waitz, vol. i. p. 32.

[b] Arist. Categ. p. 1, a. 26; b. 7: *Ἁπλῶς δὲ τὰ ἄτομα καὶ ἓν ἀριθμῷ κατ' οὐδενὸς ὑποκειμένου λέγεται, ἐν ὑποκειμένῳ δὲ ἔνια οὐδὲν κωλύει εἶναι· ἡ γάρ τις γραμματικὴ τῶν ἐν ὑποκειμένῳ ἐστίν.* Aristotle here recognizes an attribute as "individual and as numerically one;" and various other logicians have followed him. But is it correct to say, that an attribute, when it cannot be farther divided specifically, and is thus the lowest in its own predicamental series, is *Unum Numero*? The attribute may belong to an indefinite number of different objects; and can we count it as *One*, in the same sense in which we count each of these objects as *One*? I doubt whether *Unum Numero* be applicable to attributes. Aristotle declares that the *δευτέρα οὐσία* is not *Unum Numero* like the *πρώτη οὐσία—οὐ γὰρ ἓν ἐστι τὸ ὑποκείμενον ὥσπερ ἡ πρώτη οὐσία, ἀλλὰ κατὰ πολλῶν ὁ ἄνθρωπος λέγεται καὶ τὸ ζῷον* (Categ. p. 3, b. 16). Upon the same principle, I think, he ought to declare that the attribute is not *Unum Numero*; for though it is not (in his language) *predicable of* many Subjects, yet it is *in* many Subjects. It cannot correctly be called *Unum Numero*, according to the explanation which he gives of that phrase in two passages of the Metaphysica, B. p. 999, b. 33; Δ. p. 1016, b. 32: *ἀριθμῷ μὲν ὂν ἡ ὕλη μία*, &c.

places in the commencement of this treatise on the Categories—between predicates which are *affirmed of* a Subject, and predicates which are *in* a Subject[a]—we may remark that it turns altogether upon the name by which you describe the predicate. Thus he tells us that the Species and Genus (man, animal), and the Differentia (rational), may be *predicated of* Sokrates, but are not *in* Sokrates; while knowledge is *in* Sokrates, but cannot be *predicated of* Sokrates; and may be *predicated of* grammar, but is not *in* grammar. But if we look at this comparison, we shall see that in the last-mentioned example, the predicate is described by an abstract word (knowledge); while in the preceding examples it is described by a concrete word (man, animal, rational).[b] If, in place of these three last words, we substitute the abstract words corresponding to them—humanity, animality, rationality—we shall have to say that these are *in* Sokrates, though they cannot (in their abstract form) be *predicated of* Sokrates, but only in the form of their concrete paronyms, which Aristotle treats as a distinct predication. So if, instead of the abstract word knowledge, we employ the concrete word knowing or wise, we can no longer say that this is *in* Sokrates, and that it may be *predicated of* grammar. Abstract alone can be *predicated of* abstract; concrete alone can be *predicated of* concrete; if we describe the relation between Abstract and Concrete, we must say, The Abstract is *in* the Concrete—the Concrete contains or embodies the Abstract. Indeed we find Aristotle referring the same

[a] The distinction is expressed by Ammonius (Schol. p. 51, b. 46) as follows:—*αἱ πρῶται οὐσίαι ὑποκεῖνται πᾶσιν, ἀλλ' οὐχ ὁμοίως· τοῖς μὲν γὰρ πρὸς ὕπαρξιν, τοὐτεστι τοῖς συμβεβηκόσιν, τοῖς δὲ πρὸς κατηγορίαν, τοὐτεστι ταῖς καθόλου οὐσίαις.*

[b] Ueberweg makes a remark similar to this.—System der Logik, sect. 56, note, p. 110, ed. second.

predicate, when described by the abstract name, to one Category; and when described by the concrete paronymous adjective, to another and different Category.[a] The names Concrete and Abstract were not in the philosophical vocabulary of his day. In this passage of the Categoriæ, he establishes a distinction between predicates essential and predicates non-essential; the latter he here declares to be *in* the Subject, the former not to be in it, but to be *co-efficients of* its essence. But we shall find that he does not adhere to this distinction even throughout the present treatise, still less in other works. It seems to be a point of difference between the Categoriæ on one side, and the Physica and Metaphysica on the other, that in the Categoriæ he is more disposed to found supposed real distinctions on verbal etiquette, and on precise adherence to the syntactical structure of a proposition.[b]

Lastly, Aristotle here makes one important observation respecting those predicates which he describes as

[a] The difference of opinion as to the proper mode of describing the Differentia—whether by the concrete word *πεζὸν*, or by the abstract *πεζότης*—gives occasion to an objection against Aristotle's view, and to a reply from Dexippus not very conclusive (Dexippus, book ii. s. 22, pp. 60-61, ed. Spengel).

[b] Categor. p. 3, a. 3. In the Physica, iv. p. 210, a. 14-30, Aristotle enumerates nine different senses of the phrase *ἔν τινι*. His own use of the phrase is not always uniform or consistent. If we compare the Scholia on the Categoriæ, pp. 44, 45, 53, 58, 59, Br., with the Scholia on the Physica, pp. 372-373, Br., we shall see that the Commentators were somewhat embarrassed by his fluctuation. The doctrine of the Categoriæ was found especially difficult in its application to the Differentia.

In Analyt. Post. i. p. 83, a. 30, Aristotle says, *ὅσα δὲ μὴ οὐσίαν σημαίνει, δεῖ κατά τινος ὑποκειμένου κατηγορεῖσθαι*, which is at variance with the language of the Categoriæ, as the Scholiast remarks, p. 228, a. 33. The like may be said about Metaphys. B. p. 1001, b. 29; Δ. p. 1017, b. 13. See the Scholia of Alexander, p. 701, b. 25, Br.

See also De Gener. et Corrupt. p. 319, b. 8; Physic. i. p. 185, a. 31: *οὐθὲν γὰρ τῶν ἄλλων χωριστόν ἐστι παρὰ τὴν οὐσίαν· πάντα γὰρ καθ' ὑποκειμένου τῆς οὐσίας λέγεται*, where Simplikius remarks that the phrase is used *ἀντὶ τοῦ ἐν ὑποκειμένῳ* (Schol. p. 328, b. 43).

(not *in* a Subject but) *affirmed* or *denied of* a Subject —*i.e.* the essential predicates. In these (he says) whatever predicate can be truly affirmed or denied of the predicate, the same can be truly affirmed or denied of the Subject.[a] This observation deserves notice, because it is in fact a brief but distinct announcement of his main theory of the Syllogism; which theory he afterwards expands in the Analytica Priora, and traces into its varieties and ramifications.

After such preliminaries, Aristotle proceeds[b] to give the enumeration of his Ten Categories or Predicaments; under one or other of which, every subject or predicate, considered as capable of entering into a proposition, must belong:—1. *Essence* or *Substance*; such as, man, horse. 2. *How much* or *Quantity*; such as, two cubits long, three cubits long. 3. *What manner of* or *Quality*; such as, white, erudite. 4. *Ad aliquid—To something* or *Relation*; such as, double, half, greater. 5. *Where*; such as, in the market-place, in the Lykeium. 6. *When*; such as, yesterday, last year. 7. *In what posture*; such as, he stands up, he is sitting down. 8. *To have*; such as, to be shod, to be armed. 9. *Activity*; such as, he is cutting, he is burning. 10. *Passivity*; such as, he is being cut, he is being burned.

Ens in its complete state—concrete, individual, determinate—includes an embodiment of all these ten Categories; the First *Ens* being the Subject of which the rest are predicates. Whatever question be asked respecting any individual Subject, the information given in the answer must fall, according to Aristotle, under one or more of these ten general heads; while the full outfit of the individual will comprise some predicate under each of them. Moreover, each of the ten is a

[a] Categor. p. 1, b. 10-15.

[b] Ibid. p. 1, b. 25, seq.

Generalissimum; having more or fewer species contained under it, but not being itself contained under any larger genus (*Ens* not being a genus). So that Aristotle does not attempt to define or describe any one of the ten; his only way of explaining is by citing two or three illustrative examples of each. Some of the ten are even of wider extent than *Summa Genera*; thus, Quality cannot be considered as a true genus, comprehending generically all the cases falling under it. It is a *Summum Analogon*, reaching beyond the comprehension of a genus; an analogous or multivocal name, applied to many cases vaguely and remotely akin to each other.[a] And again the same particular predicate may be ranked both under Quality and under Relation; it need not belong exclusively to either one of them.[b] Moreover, Good, like *Ens* or *Unum*, is common to all the Categories, but is differently represented in each.[c]

Aristotle comments at considerable length upon the four first of the ten Categories. 1. Essence or Substance. 2. Quantity. 3. Quality. 4. Relation. As to the six last, he says little upon any of them; upon some, nothing at all.

His decuple partition of *Entia* or *Enunciata* is founded entirely upon a logical principle. He looks at them in their relation to Propositions; and his ten classes discriminate the relation which they bear to each other as parts or constituent elements of a proposition.

[a] Aristot. Categor. p. 8, b. 26. ἔστι δὲ ἡ ποιότης τῶν πλειοναχῶς λεγομένων, &c.

See the Scholia, p. 68, b. 69 a., Brandis. Ammonius gives the true explanation of this phrase, τῶν πλειοναχῶς λεγομένων (p. 69, b. 7). Alexander and Simplikius try to make out that it implies here a συνώνομον.

[b] Aristot. Categor. p. 11, a. 37. Compare the Scholion of Dexippus, p. 48, a. 28-37.

[c] Aristot. Ethic. Nikomach. i. p. 1096, a. 25; Ethic. Eudem. i. p. 1217, b. 25.

Aristotle takes his departure, not from any results of scientific research, but from common speech; and from the dialectic, frequent in his time, which debated about matters of common life and talk, about received and current opinions.[a] We may presume him to have studied and compared a variety of current propositions, so as to discover what were the different relations in which Subjects and Predicates did stand or could stand to each other; also the various questions which might be put respecting any given subject, with the answers suitable to be returned.[b]

Aristotle ranks as his first and fundamental Category SUBSTANCE or ESSENCE—*Οὐσία*; the abstract substantive word corresponding to *Τὸ ὄν*; which last is the vast aggregate, not generically One but only analogically One, destined to be distributed among the ten Categories as *Summa Genera*. The First *Ens* or First Essence —that which is *Ens* in the fullest sense—is the *individual* concrete person or thing in nature; Sokrates, Bukephalus, this man, that horse, that oak-tree, &c. This First *Ens* is indispensable as Subject or *Substratum* for all the other Categories, and even for predication generally. It is a Subject only; it never

[a] Waitz, ad Aristot. Categor. p. 284: "In Categoriis non de ipsâ rerum natura et veritate exponit, sed res tales capit, quales apparent in communi vita homini philosophia non imbuto, unde fit, ut in Categoriis alia sit *πρώτη οὐσία* et in prima philosophia: illa enim partes habet, hæc vero non componitur ex partibus."

Compare Metaphys. Z. p. 1032, b. 2, and the *ἀπορία* in Z. p. 1029, a., p. 1037, a. 28.

The different meaning of *πρώτη οὐσία* in the Categoriæ and in the Metaphysica, is connected with various difficulties and seeming discrepancies in the Aristotelian theory of cognition, which I shall advert to in a future chapter. See Zeller, Philos. der Griech. ii. 2, pp. 234, 262; Heyder, Aristotelische und Hegelsche Dialektik, p. 141, seq.

[b] Thus he frequently supposes a question put, an answer given, and the proper mode of answering. Categor. p. 2, b. 8: *ἐὰν γὰρ ἀποδιδῷ τις τὴν πρώτην οὐσίαν τί ἐστι, γνωριμώτερον καὶ οἰκειότερον ἀποδώσει*, &c.; also ibid. p. 2, b. 32; p. 3, a. 4, 20.

appears as a predicate of anything else. As *Hic Aliquis* or *Hoc Aliquid*, it lies at the bottom (either expressed or implied) of all the work of predication. It is *Ens* or Essence most of all, *par excellence*; and is so absolutely indispensable, that if all First *Entia* were supposed to be removed, neither Second *Entia* nor any of the other Categories could exist.[a]

The Species is recognized by Aristotle as a Second *Ens* or Essence, in which these First Essences reside; it is less (has less completely the character) of Essence than the First, to which it serves as Predicate. The Genus is (strictly speaking) a Third Essence,[b] in which both the First and the Second Essence are included; it is farther removed than the Species from the First Essence, and has therefore still less of the character of Essence. It stands as predicate both to the First and to the Second Essence. While the First Essence is more Essence than the Second, and the Second more than the Third, all the varieties of the First Essence are in this respect upon an equal footing with each other. This man, this horse, that tree, &c., are all Essence, equally and alike.[c] The First Essence admits of much variety, but does not admit graduation, or degrees of more or less.

Nothing else except Genera and Species can be called Second Essences, or said to belong to the Category

[a] Aristot. Categ. p. 2, a. 11, b. 6. *Οὐσία ἡ κυριώτατα καὶ πρώτως καὶ μάλιστα λεγομένη—μὴ οὐσῶν οὖν τῶν πρώτων οὐσιῶν, ἀδύνατον τῶν ἄλλων τι εἶναι.*

[b] Aristotle here, in the Categoriæ, ranks Genus and Species as being, both of them, *δεύτεραι οὐσίαι*. Yet since he admits Genus to be farther removed from *πρώτη οὐσία* than Species is, he ought rather to have called Genus a Third Essence. In the Metaphysica he recognizes a gradation or ordination of *οὐσία* into First, Second, and Third, founded upon a totally different principle: the Concrete, which in the Categoriæ ranks as *πρώτη οὐσία*, ranks as *τρίτη οὐσία* in the Metaphysica. See Metaphys. H. p. 1043, a. 18-28.

[c] Aristot. Categ. p. 2, b. 20; p. 3, b. 35.

Essence; for they alone declare what the First Essence is. If you are asked respecting Sokrates, *What* he *is?* and if you answer by stating the Species or the Genus to which he belongs—that he is a man or an animal—your answer will be appropriate to the question; and it will be more fully understood if you state the Species than if you state the Genus. But if you answer by stating what belongs to any of the other Categories (viz., that he is white, that he is running), your answer will be inappropriate, and foreign to the question; it will not declare *what* Sokrates *is*.[a] Accordingly, none of these other Categories can be called Essences. All of them rank as predicates both of First and of Second Essence; just as Second Essences rank as predicates of First Essences.[b]

Essence or Substance is not *in* a Subject; neither First nor Second Essence. The First Essence is neither *in* a Subject nor *predicated of* a Subject; the Second Essences are not *in* the First, but are *predicated of* the First. Both the Second Essence, and the definition of the word describing it, may be *predicated of* the First; that is, the predication is synonymous or univocal; whereas, of that which is *in* a Subject, the name may often be predicated, but never the definition of the name. What is true of the Second Essence, is true also of the Differentia; that it is not *in* a Subject, but that it may be *predicated* univocally *of* a Subject—not only its name, but also the definition of its name.[c]

[a] Aristot. Categ. p. 2, b. 29-37. *εἰκότως δὲ μετὰ τὰς πρώτας οὐσίας μόνα τῶν ἄλλων τὰ εἴδη καὶ τὰ γένη δευτέραι οὐσίαι λέγονται· μόνα γὰρ δηλοῖ τὴν πρώτην οὐσίαν τῶν κατηγορουμένων. τὸν γάρ τινα ἄνθρωπον ἐὰν ἀποδιδῷ τις τί ἐστι, τὸ μὲν εἶδος ἢ τὸ γένος ἀποδιδοὺς οἰκείως ἀποδώσει, καὶ γνωριμώτερον ποιήσει ἂν θρωπον ἢ ζῷον ἀποδιδούς· τῶν δὲ ἄλλων ὅ, τι ἂν ἀποδιδῷ τις, ἀλλοτρίως ἔσται ἀποδεδωκώς, οἷον λευκὸν ἢ τρέχει ἢ ὁτιοῦν τῶν τοιούτων ἀποδιδούς. ὥστε εἰκότως τῶν ἄλλων ταῦτα μόνα οὐσίαι λέγονται.*

[b] Ibid. p. 3, a. 2.

[c] Ibid. p. 3, a. 7, 21, 34. *κοινὸν δὲ κατὰ πάσης οὐσίας τὸ μὴ ἐν ὑπο-*

All Essence or Substance seems to signify *Hoc Aliquid Unum Numero.* The First Essence really does so signify, but the Second Essence does not really so signify; it only seems to do so, because it is enunciated by a substantive name, like the First.[a] It signifies really *Tale Aliquid*, answering to the enquiry *Quale Quid?* for it is said not merely of one thing numerically, but of many things each numerically one. Nevertheless, a distinction must be drawn. The Second Essence does not (like the Accident, such as white) signify *Tale Aliquid* simply and absolutely, or that and nothing more. It signifies *Talem Aliquam Essentiam;* it declares what the Essence is, or marks off the characteristic feature of various First Essences, each *Unum Numero.* The Genus marks off a greater number of such than the Species.[b]

Again, Essences have no contraries.[c] But this is not peculiar to Essences, for *Quanta* also have no contraries: there is nothing contrary to ten, or to that which is two cubits long. Nor is any one of the varieties of First Essence more or less Essence than any other variety. An individual man is as much Essence as an individual horse, neither more nor less. Nor is he at one time more a man than he was at another time; though he may become more or less white, more or less handsome.[d]

But that which is most peculiar to Essence, is, that

κειμένῳ εἶναι—οὐκ ἴδιον δὲ τῆς τοῦτο οὐσίας, ἀλλὰ καὶ ἡ διαφορὰ τῶν μὴ ἐν ὑποκειμένῳ ἐστίν — ὑπάρχει δὲ ταῖς οὐσίαις καὶ ταῖς διαφοραῖς τὸ πάντα συνωνύμως ἀπ' αὐτῶν λέγεσθαι.

[a] Aristot. Categ. p. 3, b. 10-16: Πᾶσα δὲ οὐσία δοκεῖ τόδε τι σημαίνειν. ἐπὶ μὲν οὖν τῶν πρώτων οὐσιῶν ἀναμφισβήτητον καὶ ἀληθές ἐστιν ὅτι τόδε τι σημαίνει· ἄτομον γὰρ καὶ ἓν ἀριθμῷ τὸ δηλούμενόν ἐστιν· ἐπὶ δὲ τῶν δευτέρων οὐσιῶν φαίνεται μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ ἄνθρωπον ἢ ζῷον, οὐ μὴν ἀληθές γε, ἀλλὰ μᾶλλον ποιόν τι σημαίνει.

[b] Ibid. p. 3, b. 18-24.

[c] Ibid. b. 24-30.

[d] Ibid. b. 34, seq.

while remaining *Unum et Idem Numero*, it is capable by change in itself of receiving alternately contrary Accidents. This is true of no other Category. For example, this particular colour, being one and the same in number, will never be now black, and then white; this particular action, being one and the same in number, will not be at one time virtuous, at another time vicious. The like is true respecting all the other Categories. But one and the same man will be now white, hot, virtuous; at another time, he will be black, cold, vicious. An objector may say that this is true, not merely of Essence, but also of Discourse and of Opinion; each of which (he will urge) remains *Unum Numero*, but is nevertheless recipient of contrary attributes; for the proposition or assertion, Sokrates is sitting, may now be true and may presently become false. But this case is different, because there is no change in the proposition itself, but in the person or thing to which the proposition refers; while one and the same man, by new affections in himself, is now healthy, then sick; now hot, then cold.[a]

Here Aristotle concludes his first Category or Predicament—Essence or Substance. He proceeds to the other nine, and ranks QUANTITY first among them.[b] *Quantum* is either Continual or Discrete; it consists either of parts having position in reference to each other, or of parts not having position in reference to each other. Discrete *Quanta* are Number and Speech; Continual *Quanta* are Line, Surface, Body, and besides these, Time and Place. The parts of Number have no position in reference to each other; the parts of Line, Surface, Body, have position in reference to each other. These are called *Quanta*, primarily; other things are

[a] Aristot. Categ. p. 4, a. 10-b. 20.

[b] Ibid. b. 21, seq.

called *Quanta* in a secondary way, *κατὰ συμβεβηκός*.[a] Thus we say *much white*, when the surface of white is large; we say, *the action is long*, because much time and movement have been consumed in it. If we are asked, *how long the action* is? we must answer by specifying its length in time—a year or a month.

To *Quantum* (as to Essence or Substance) there exists no contrary.[b] There is nothing contrary to a length of three cubits or an area of four square feet. Great, little, long, short, are more properly terms of Relation than terms of Quantity; thus belonging to another Category. Nor is *Quantum* ever more or less *Quantum*; it does not admit of degree. The *Quantum* a yard is neither more nor less *Quantum* than that called a foot. That which is peculiar to *Quanta* is to be equal or unequal:[c] the relations of equality and inequality are not properly affirmed of anything else except of *Quanta*.

From the Category of Quantity, Aristotle proceeds next to that of RELATION;[d] which he discusses in immediate sequence after Quantity, and before Quality, probably because in the course of his exposition about Quantity, he had been obliged to intimate how closely Quantity was implicated with Relation, and how essential it was that the distinction between the two should be made clear.

Relata (*τὰ πρός τι*—*ad Aliquid*) are things such, that what they are, they are said to be *of other things*, or are said to be in some other manner *towards something else* (*ὅσα αὐτὰ ἅπερ ἐστὶν ἑτέρων εἶναι λέγεται, ἢ ὁπωστοῦν ἄλλως πρὸς ἕτερον*). Thus, that which is greater, is said to be greater *than another*; that which is called double is called also double *of another*. Habit, disposition,

[a] Aristot. Categ. p. 5, a. 38, seq.
[b] Ibid. b. 11, seq.
[c] Ibid. p. 6, a. 26-35.
[d] Ibid. a. 36, seq.

perception, cognition, position, &c., are all *Relata*. Habit, is habit *of something*; perception and cognition, are always *of something*; position, is position *of something*. The Category of Relation admits contrariety in some cases, but not always; it also admits, in some cases, graduation, or the more or less in degree; things are more like or less like to each other.[a] All *Relata* are so designated in virtue of their relation to other *Correlata*; the master is master *of a servant*—the servant is servant *of a master*. Sometimes the *Correlatum* is mentioned not in the genitive case but in some other case; thus cognition is cognition *of* the *cognitum*, but *cognitum* is *cognitum by* cognition; perception is perception *of* the *perceptum*, but the *perceptum* is *perceptum by* perception.[b] The correlation indeed will not manifestly appear, unless the Correlate be designated by its appropriate term: thus, if the wing be declared to be wing *of a bird*, there is no apparent correlation; we ought to say, the wing is wing *of the winged*, and the winged is winged *through* or *by* the wing; for the wing belongs to the bird, not *quâ bird*, but *quâ winged*,[c] since there are many things winged, which are not birds. Sometimes there is no current term appropriate to the Correlate, so that we are under the necessity of coining one for the occasion: we must say, to speak with strict accuracy, *ἡ κεφαλή, τοῦ κεφαλωτοῦ κεφαλή*, not *ἡ κεφαλή, τοῦ ζῴου κεφαλή*; *τὸ πηδάλιον, τοῦ πηδαλιωτοῦ πηδάλιον*, not *τὸ πηδάλιον, πλοίου πηδάλιον*.[d]

[a] Aristot. Categ. p. 6, b. 20.

[b] Ibid. b. 28-37.

[c] Ibid. b. 36; p. 7, a. 5. *οὐ μὴν ἀλλ' ἐνίοτε οὐ δόξει ἀντιστρέφειν, ἐὰν μὴ οἰκείως πρὸς ὃ λέγεται ἀποδοθῇ, ἀλλὰ διαμάρτῃ ὁ ἀποδιδούς, οἷον τὸ πτερὸν ἐὰν ἀποδοθῇ ὄρνιθος, οὐκ ἀντιστρέφει ὄρνις πτεροῦ· οὐ γὰρ οἰκείως τὸ πρῶτον ἀποδέδοται πτερὸν ὄρνιθος· οὐ γὰρ ἡ ὄρνις, ταύτῃ τὸ πτερὸν αὐτοῦ λέγεται, ἀλλ' ἡ πτερωτόν ἐστι· πολλῶν γὰρ καὶ ἄλλων πτερά ἐστιν, ἃ οὐκ εἰσὶν ὄρνιθες.*

[d] Ibid. p. 7, a. 6-25. *ἐνίοτε δὲ καὶ ὀνοματοποιεῖν ἴσως ἀναγκαῖον, ἐὰν μὴ κείμενον ᾖ ὄνομα πρὸς ὃ οἰκείως ἂν ἀποδοθείη*, &c.

The *Relatum* and its Correlate seem to be *simul naturâ*. If you suppress either one of the pair, the other vanishes along with it. Aristotle appears to think, however, that there are many cases in which this is not true. He says that there can be no *cognoscens* without a *cognoscibile*, nor any *percipiens* without a *percipibile*; but that there may be *cognoscibile* without any *cognoscens*, and *percipibile* without any *percipiens*. He says that τὸ αἰσθητὸν exists πρὸ τοῦ αἴσθησιν εἶναι.[a] Whether any Essence or Substance can be a *Relatum* or not, he is puzzled to say; he seems to think that the Second Essence may be, but that the First Essence cannot be so. He concludes, however, by admitting that the question is one of doubt and difficulty.[b]

QUALITY is that according to which Subjects are called Such and Such (ποιοί τινες). It is, however, not a true genus, but a vague word, of many distinct, though analogous, meanings, including an assemblage of particulars not bound together by any generic tie.[c] The

[a] Aristot. Categ. p. 7, b. 15; p. 8, a. 12. The Scholion of Simplikius on this point (p. 65, a. 16, b. 18, Br.) is instructive. He gives his own opinion, and that of some preceding commentators, adverse to Aristotle. He says that ἐπιστήμη and τὸ ἐπιστητόν, αἴσθησις and τὸ αἰσθητόν, are not properly correlates. The actual correlates with the actual, the potential with the potential. Now, in the above pairs, ἐπιστητὸν and αἰσθητὸν are potentials, while ἐπιστήμη and αἴσθησις are actuals; therefore it is correct to say that τὸ ἐπιστητὸν and τὸ αἰσθητὸν will not cease to exist if you take away ἐπιστήμη and αἴσθησις. But the real and proper correlate to τὸ ἐπιστητὸν would be τὸ ἐπιστημονικόν; the proper correlate to τὸ αἰσθητὸν would be τὸ αἰσθητικόν. And when we take these two latter pairs, it is perfectly correct to say, συναναιρεῖ ταῦτα ἄλληλα.

In the treatise, De Partibus Animalium, i. p. 641, b. 2, where Aristotle makes νοῦς correlate with τὰ νοητά, we must understand νοῦς as equivalent to τὸ νοητικόν, and as different from ἡ νόησις.

[b] Aristot. Categ. p. 8, b. 22.

[c] See the first note on p. 94. Aristot. Categ. p. 8, b. 26: ἔστι δὲ ἡ ποιότης τῶν πλεοναχῶς λεγομένων, &c. Compare Metaphys. Δ. p. 1020, a. 33, and the Scholion of Alexander, p. 715, a. 5, Br.

The abstract term Ποιότης was a

more familiar varieties are—1. Habits or endowments (ἕξεις) of a durable character, such as, wise, just, virtuous; 2. Conditions more or less transitory, such as, hot, cold, sick, healthy, &c. (διαθέσεις); 3. Natural powers or incapacities, such as hard, soft, fit for boxing, fit for running, &c.; 4. Capacities of causing sensation, such as sweet of honey, hot and cold of fire and ice. But a person who occasionally blushes with shame, or occasionally becomes pale with fear, does not receive the designation of *such or such* from this fact; the occasional emotion is a passion, not a quality.[a]

A fifth variety of Quality is figure or circumscribing form, straightness or crookedness. But dense, rare, rough, smooth, are not properly varieties of Quality; objects are not denominated *such and such* from these circumstances. They rather declare position of the particles of an object in reference to each other, near or distant, evenly or unevenly arranged.[b]

Quality admits, in some cases but not in all, both contrariety and graduation. Just is contrary to unjust, black to white; but there is no contrary to red or pale. If one of two contraries belongs to Quality, the other of the two will also belong to Quality. In regard to graduation, we can hardly say that Quality in the abstract is capable of more and less; but it is indisputable that different objects have more or less of the same quality. One man is more just, healthy, wise, than another; though justice or health in itself cannot be called more or less. One thing cannot be more a triangle, square, or circle than another; the square is not more a circle than the oblong.[c]

What has just been said is not peculiar to Quality;

new coinage in Plato's time; he introduces it with an apology (Theætet. p. 182 A.).

[a] Aristot. Categ. p. 9, b. 20-33.
[b] Ibid. p. 10, a. 11-24.
[c] Ibid. b. 12; p. 11, a. 10, 11-24.

but one peculiarity there is requiring to be mentioned. Quality is the foundation of Similarity and Dissimilarity. Objects are called *like* or *unlike* in reference to qualities.[a]

In speaking about Quality, Aristotle has cited many illustrations from *Relata*. Habits and dispositions, described by their generic names, are *Relata*; in their specific varieties they are Qualities. Thus cognition is always cognition *of something*, and is therefore a *Relatum*; but *grammatiké* (grammatical cognition) is not *grammatiké of any thing*, and is therefore a Quality. It has been already intimated[b] that the same variety may well belong to two distinct Categories.

After having thus dwelt at some length on each of the first four Categories, Aristotle passes lightly over the remaining six. Respecting *Agere* and *Pati*, he observes that they admit (like Quality) both of graduation and contrariety. Respecting *Jacēre*, he tells us that the predicates included in it are derived from the fact of positions, which positions he had before ranked among the *Relata*. Respecting *Ubi*, *Quando*, and *Habere*, he considers them all so manifest and intelligible, that he will say nothing about them; he repeats the illustrations before given—*Habere*, as, to be shod, or to be armed (to have shoes or arms); *Ubi*, as, in the Lykeium; *Quando*, as, yesterday, last year.[c]

No part of the Aristotelian doctrine has become more incorporated with logical tradition, or elicited a greater amount of comment and discussion,[d] than these Ten

[a] Aristot. Categ. p. 11, a. 15.

[b] Ibid. a. 20-38. *ἔτι εἰ τύγχανοι τὸ αὐτὸ πρός τι καὶ ποιὸν ὄν, οὐδὲν ἄτοπον ἐν ἀμφοτέροις τοῖς γένεσιν αὐτὸ κατατεθεῖσθαι.*

[c] Ibid. b. 8-15. *διὰ τὸ προφανῆ εἶναι, οὐδὲν ὑπὲρ αὐτῶν ἄλλο λέγεται ἢ ὅσα ἐν ἀρχῇ ἐρρέθη*, &c.

[d] About the prodigious number of these comments, see the Scholion of

Categories or Predicaments. I have endeavoured to give the exposition as near as may be in the words and with the illustrations of Aristotle; because in many of the comments new points of view are introduced, sometimes more just than those of Aristotle, but not present to his mind. Modern logicians join the Categories side by side with the five Predicables, which are explained in the Eisagoge of Porphyry, more than five centuries after Aristotle's death. As expositors of Logic they are right in doing this; but my purpose is to illustrate rather the views of Aristotle. The mind of Aristotle was not altogether exempt from that fascination[a] which particular numbers exercised upon the Pythagoreans and after them upon Plato. To the number Ten the Pythagoreans ascribed peculiar virtue and perfection. The fundamental Contraries, which they laid down as the Principles of the Universe, were ten in number.[b]

Dexippus, p. 39, a. 34, Br.; p. 5, ed. Spengel.

[a] See Simpl. in Categ. Schol. p. 78, b. 14, Br.; also the two first chapters of the Aristotelian treatise De Cœlo; compare also, about the perfection of the *τρίτη σύστασις*, De Partibus Animalium, ii. p. 646, b. 9; De Generat. Animal. iii. p. 760, a. 34.

[b] Aristot. Metaph. A. p. 986, a. 8. There existed, in the time of the later Peripatetics, a treatise in the Doric dialect by Archytas—*Περὶ τοῦ Παντός*—discriminating Ten Categories, and apparently the same ten Categories as Aristotle. By several Aristotelian critics this treatise was believed to have been composed by Archytas the Tarentine, eminent both as a Pythagorean philosopher and as the leading citizen of Tarentum—the contemporary and friend of Plato, and, therefore, of course, earlier than Aristotle. Several critics believed that Aristotle had borrowed his Ten Categories from this work of Archytas; and we know that the latter preserved the total number of Ten. See Schol. ad Categor. p. 79, b. 3, Br.

But other critics affirmed, apparently with better reason, that the Archytas, author of this treatise, was a Peripatetic philosopher later than Aristotle; and that the doctrine of Archytas on the Categories was copied from Aristotle in the same manner as the Doric treatise on the Kosmos, ascribed to the Lokrian Timæus, was copied from the Timæus of Plato, being translated into a Doric dialect.

See Scholia of Simplikius and Boëthius, p. 33. a. 1, n.; p. 40, a. 43, Brandis. The fact that this treatise was ascribed to the Tarentine Archytas, indicates how much the number Ten was consecrated in men's minds as a Pythagorean canon.

After them, also, Plato carried his ideal numbers as far as the Dekad, but no farther. That Aristotle considered Ten to be the suitable number for a complete list of general heads—that he was satisfied with making up the list of ten, and looked for nothing beyond—may be inferred from the different manner in which he deals with the different items. At least, such was his point of view when he composed this treatise. Though he recognizes all the ten Categories as co-ordinate in so far that (except *Quale*) each is a distinct Genus, not reducible under either of the others, yet he devotes all his attention to the first four, and gives explanations (copious for him) in regard to these. About the fifth and sixth (*Agere* and *Pati*)* he says a little, though much less than we should expect, considering their extent and importance. About the last four, next to nothing appears. There are even passages in his writings where he seems to drop all mention of the two last (*Jacere* and *Habere*), and to recognize no more than eight Predicaments. In the treatise Categoriæ where his attention is fastened on Terms and their signification, and on the appropriate way of combining these terms into propositions, he recites the ten *seriatim*; but in other treatises, where his remarks bear more upon the matter and less upon the terms by which it is signified, he thinks himself warranted in leaving out the two or three whose applications are most confined to special subjects. If he had thought fit to carry the total number of Predicaments to twelve or fifteen

* Trendelenburg thinks (Geschichte der Kategorienlehre, p. 131) that Aristotle must have handled the Categories *Agere* and *Pati* more copiously in other treatises; and there are some passages in his works which render this probable. See De Animâ, ii. p. 416, b. 35; De Generat. Animal. iv. p. 768, b. 15. Moreover, in the list of Aristotle's works given by Diogenes Laertius, one title appears—Περὶ τοῦ ποιεῖν καὶ πεπονθέναι (Diog. L. v. 22).

instead of ten,[a] he would probably have had little difficulty in finding some other general heads not less entitled to admission than *Jacere* and *Habere*; the rather, as he himself allows, even in regard to the principal Categories, that particulars comprised under one of them may also be comprised under another, and that there is no necessity for supposing each particular to be restricted to one Category exclusively.

These remarks serve partly to meet the difficulties pointed out by commentators in regard to the Ten Categories. From the century immediately succeeding Aristotle, down to recent times, the question has always been asked, why did Aristotle fix upon Ten Categories rather than any other number? and why upon these Ten rather than others? And ancient commentators[b] as well as modern have insisted, that the classification is at once defective and redundant; leaving out altogether some particulars, while it enumerates others twice over or more than twice. (This last charge is, however, admitted by Aristotle himself, who considers it no ground of objection that the same particular may sometimes be ranked under two distinct heads.) The replies made to the questions, and the attempts to shew cause for the selection of these Ten classes, have not been satisfactory; though it is certain that Aristotle himself treats the classification as if it were real and exhaustive,[c]

[a] Prantl expresses this view in his Geschichte der Logik (p. 206), and I think it just.

[b] Schol. p. 47, b. 14, seq., 49, a. 10, seq. Br.; also Simplikius ad Categor. fol. 15, 31 A, 33 E. ed. Basil., 1551.

[c] Scholia ad Analyt. Poster. (I. xxiii. p. 83, a. 21) p. 227, b. 40, Br.: *Ὅτι δὲ τοσαῦται μόναι αἱ κατηγορίαι αἱ κατὰ τῶν οὐσιῶν λεγόμεναι, ἐκ τῆς ἐπαγωγῆς λαμβάνει.*

Brentano (in his treatise, Ueber die Bedeutung des Seienden in Aristoteles, Sects. 12 and 13, pp. 148-177) attempts to draw out a scheme of systematic deduction for the Categories. He quotes (pp. 181-182) a passage from Thomas Aquinas, in which such a scheme is set forth

obtained by comparing many propositions and drawing from them an induction. He tries to determine, in regard to some particular enquiries, under which of the Ten *Summa Genera* the subject of the enquiry is to be ranged; he indicates some predicates of extreme generality (*Unum*, *Bonum*, &c.), which extend over all or several Categories, as equivocal or analogous, representing no true *Genera*. But though Aristotle takes this view of the completeness of his own classification, he never assigns the grounds of it, and we are left to make them out in the best way we can.

We cannot safely presume, I think, that he followed out any deductive principle or system; if he had done so, he would probably have indicated it. The decuple indication of general heads arose rather from comparison of propositions and induction therefrom. Under each of these ten heads, some predicate or other may always be applied to every concrete individual object, such as a man or animal. Aristotle proceeded by comparing a variety of propositions, such as were employed in common discourse or dialectic, and throwing the different predicates into *genera*, according as they stood in different logical relation to the Subject. The analysis applied is not metaphysical but logical; it does not resolve the real individual into metaphysical ἀρχαὶ or Principles, such as Form and Matter; it accepts the individual

acutely and plausibly. But if Aristotle had had any such system present to his mind, he would hardly have left it to be divined by commentators.

Simplikius observes (Schol. ad Categ. p. 44, a. 30) that the last nine Categories coincide in the main (excepting such portion of *Quale* as belongs to the Essence) with τὸ ὂν κατὰ συμβεβηκός: which latter, according to Aristotle's repeated declarations, can never be the matter of any theorizing or scientific treatment—οὐδεμία ἐστὶ περὶ αὐτὸ θεωρία, Metaphys. E. p. 1026, b. 4; K. p. 1064, b. 17. This view of Aristotle respecting τὸ συμβεβηκός, is hardly consistent with a scheme of intentional deduction for the accidental predicates.

as he stands, with his full complex array of predicates embodied in a proposition, and analyses that proposition into its logical constituents.[a] The predicates derive their existence from being attached to the First Subject, and have a different manner of existence according as they are differently related to the First Subject.[b] What is this individual, Sokrates? He is an *animal*. What is his Species? *Man*. What is the Differentia, limiting the Genus and constituting the Species? *Rationality*,

[a] Aristot. Metaphys. Z. p. 1038, b. 15. *διχῶς ὑποκεῖται, ἢ τόδε τι ὄν, ὥσπερ τὸ ζῷον τοῖς πάθεσιν, ἢ ὡς ἡ ὕλη τῇ ἐντελεχείᾳ.* The first mode of *ὑποκείμενον* is what is in the Categories. For the second, which is the metaphysical analysis, see Aristot. Metaph. Z. p. 1029, a. 23: *τὰ μὲν γὰρ ἄλλα τῆς οὐσίας κατηγορεῖται, αὕτη δὲ τῆς ὕλης. ὥστε τὸ ἔσχατον καθ' αὑτὸ οὔτε τὶ οὔτε ποσὸν οὔτε ἄλλο οὐθέν ἐστι.*

Porphyry and Dexippus tell us (Schol. ad Categ. p. 45, a. 6-30) that both Aristotle and the Stoics distinguished *πρῶτον ὑποκείμενον* and *δεύτερον ὑποκείμενον*. The *πρῶτον ὑποκείμενον* is *ἡ ἄποιος ὕλη—τὸ δυνάμει σῶμα*, which Aristotle insists upon in the Physica and Metaphysica, the correlate of *εἶδος* generally. The *δεύτερον ὑποκείμενον, ὃ κοινῶς ποιὸν ἢ ἰδίως ὑφίσταται*, coincides with the *πρώτη οὐσία* of the Categories, already implicated with *εἶδος* and stopping short of metaphysical analysis.

The remarks of Boëthus and Simplikius upon this point deserve attention. Schol. pp. 50-54, Br.; p. 54, a. 2: *οὐ περὶ τῆς ἀσχέτου ὕλης ἐστὶν ὁ παρὼν λόγος, ἀλλὰ τῆς ἤδη σχέσιν ἐχούσης πρὸς τὸ εἶδος. τὸ δὲ σύνθετον δηλόνοτι, ὅπερ ἐστὶ τὸ ἄτομον, ἐπιδέχεται τὸ τόδε.* They point out that the terms Form and Matter are not mentioned in the Categories, nor do they serve to illustrate the Categories, which do not carry analysis so far back, but take their initial start from *τόδε τι*, the *σύνθετον* of Form and Matter,—*οὐσία κυριώτατα καὶ πρώτως καὶ μάλιστα λεγομένη.*

Simplikius says (p. 50, a. 17):—*δυνατὸν δὲ τοῦ μὴ μνημονεῦσαι τοῦ εἴδους καὶ τῆς ὕλης αἴτιον λέγειν, καὶ τὸ τὴν τῶν Κατηγοριῶν πραγματείαν κατὰ τὴν πρόχειρον καὶ κοινὴν τοῦ λόγου χρῆσιν ποιεῖσθαι· τὸ δὲ τῆς ὕλης καὶ τοῦ εἴδους ὄνομα καὶ τὰ ὑπὸ τούτων σημαινόμενα οὐκ ἦν τοῖς πολλοῖς συνήθη*, &c. Compare p. 47, a. 27. This is what Dexippus says also, that the Categories bear only upon *τὴν πρώτην χρείαν τοῦ λόγου καθ' ἣν τὰ πράγματα δηλοῦν ἀλλήλοις ἐφιέμεθα* (p. 13, ed. Spengel; also p. 49).

Waitz, ad Categor. p. 284. "In Categoriis, non de ipsâ rerum naturâ et veritate exponit, sed res tales capit, quales apparent in communi vitâ homini philosophiâ non imbuto."

We may add, that Aristotle applies the metaphysical analysis—Form and Matter—not only to the Category *οὐσία*, but also to that of *ποιὸν* and *ποσόν*. (De Cœlo, iv. 312, a. 14.)

[b] Aristot. Metaph. Δ. 1017, a. 23. *ὁσαχῶς γὰρ λέγεται, τοσαυταχῶς τ' εἶναι σημαίνει.*

two-footedness. What is his height and bulk? He is *six feet* high, and is of *twelve stone* weight. What manner of man is he? He is *flat-nosed, virtuous, patient, brave.* In what relation does he stand to others? He is a *father*, a *proprietor*, a *citizen*, a *general.* What is he doing? He is *digging his garden, ploughing his field.* What is being done to him? He is *being rubbed with oil*, he is *having his hair cut.* Where is he? *In the city, at home, in bed.* When do you speak of him? *As he is, at this moment, as he was, yesterday, last year.* In what posture is he? He is *lying down, sitting, standing up, kneeling, balancing on one leg.* What is he wearing? He *has a tunic, armour, shoes, gloves.*

Confining ourselves (as I have already observed that Aristotle does in the Categories) to those perceptible or physical subjects which every one admits,* and keeping clear of metaphysical entities, we shall see that respecting any one of these subjects the nine questions here put may all be put and answered; that the two last are most likely to be put in regard to some living being; and that the last can seldom be put in regard to any other subject except a person (including man, woman, or child). Every individual person falls necessarily under each of the ten Categories; belongs to the Genus animal, Species man; he is of a certain height and bulk; has certain qualities; stands in certain relations to other persons or things; is doing something and suffering something; is in a certain place; must be described with reference to a certain moment of time; is in a certain attitude or posture; is clothed or equipped in a certain manner. Information of some kind may always be given respecting him under each of these

* Aristot. Metaphys. Z. p. 1028, b. 8, seq.: p. 1042, a. 25. *αἱ αἰσθηταὶ οὐσίαι—αἱ ὁμολογούμεναι οὐσίαι.*

heads; he is always by necessity *quantus*, but not always of any particular quantity. Until such information is given, the concrete individual is not known under conditions thoroughly determined.[a] Moreover each head is separate and independent, not resolvable into any of the rest, with a reservation, presently to be noticed, of Relation in its most comprehensive meaning. When I say of a man, that he is at home, lying down, clothed with a tunic, &c., I do not predicate of him any quality, action, or passion. The information which I give belongs to three other heads distinct from these last, and distinct also from each other. If you suppress the two last of the ten Categories and leave only the preceding eight, under which of these eight are you to rank the predicates, Sokrates is *lying down*, Sokrates is *clothed with a tunic*, &c.? The necessity for admitting the ninth and tenth Categories (*Jacere* and *Habere*) as separate general heads in the list, is as great as the necessity for admitting most of the Categories which precede. The ninth and tenth are of narrower comprehension,[b] and include a smaller number of dis-

[a] Prantl observes, Geschichte der Logik, p. 208:—"Fragen wir, wie Aristoteles überhaupt dazu gekommen sei, von Kategorien zu sprechen, und welche Geltung dieselben bei ihm haben, so ist unsere Antwort hierauf folgende: Aristoteles geht, im Gegensatze gegen Platon, davon aus, dass die Allgemeinheit in der Concretion des Seienden sich verwirkliche und in dieser Realität von dem menschlichen Denken und Sprechen ergriffen werde; der Verwirklichungsprocess des concret Seienden ist der Uebergang vom Unbestimmten, jeder Bestimmung aber fähigen, zum allseitig Bestimmten, welchem demnach die Bestimmtheit überhaupt als eine selbst concret gewordene einwohnt und ebenso in des Menschen Rede von ihm ausgesagt wird. Das grundwesentliche Ergebniss der Verwirklichung ist sonach: die zeitlich-räumlich concret auftretende und hiemit individuell gewordene Substanzialität, in einer dem Zustande der Concretion entsprechenden Erscheinungsweise; diese letztere umfasst das ganze habituelle Dasein und Wirken der concreten Substanz, welche in der Welt der räumlichen Ausdehnung und numeräre Vielheit erscheint. Die ontologische Basis demnach der Kategorien ist der in die Concretion führende Verwirklichungsprocess der Bestimmtheit überhaupt."

[b] Plotinus, among his various grounds of exception to the ten Ari-

tinguishable varieties, than the preceding; but they are not the less separate heads of information. So, among the chemical elements enumerated by modern science, some are very rarely found; yet they are not for that reason the less entitled to a place in the list.

If we seek not to appreciate the value of the Ten Categories as a philosophical classification, but to understand what was in the mind of Aristotle when he framed it, we shall attend, not so much to the greater features, which it presents in common with every other scheme of classification, as to the minor features which constitute its peculiarity. In this point of view the two last Categories are more significant than the first four, and the tenth is the most significant of all; for every one is astonished when he finds *Habere* enrolled as a tenth *Summum Genus*, co-ordinate with *Quantum* and *Quale*. Now what is remarkable about the ninth and tenth Categories is, that individual persons or animals are the only Subjects respecting whom they are ever predicated, and are at the same time Subjects respecting whom they are constantly (or at least frequently) predicated. An individual person is habitually clothed in some particular way in all or part of his body; he (and perhaps his horse also) are the only Subjects that are ever so clothed. Moreover animals are the only Subjects, and among them man is the principal Subject, whose changes of posture are frequent, various, determined by internal impulses, and at the same time interesting to others to know. Hence we may infer that when Aristotle lays down the Ten Categories, as *Summa Genera* for all predications which can be

stotelian Categories, objects to the ninth and tenth on the ground of their narrow comprehension (Ennead. vi. 1, 23, 24).

Boëthus expressly vindicated the title of ἔχειν to be recognized as a separate Category, against the Stoic objectors.—Schol. ad Categ. p. 81, a. 5.

made about any given Subject, the Subject which he has wholly, or at least principally, in his mind is an individual Man. We understand, then, how it is that he declares *Habere* and *Jacere* to be so plain as to need no farther explanation. What is a man's posture? What is his clothing or equipment? are questions understood by every one.[a] But when Aristotle treats of *Habere* elsewhere, he is far from recognizing it as narrow and plain *per se*. Even in the Post-Predicamenta (an appendix tacked on to the Categoriæ, either by himself afterwards, or by some follower) he declares *Habere* to be a predicate of vague and equivocal signification; including portions of *Quale*, *Quantum*, and *Relata*. And he specifies the personal equipment of an individual as only one among these many varieties of signification. He takes the same view in the fourth book (Δ.) of the Metaphysica, which book is a sort of lexicon of philosophical terms.[b] This enlargement of the meaning of the word *Habere* seems to indicate an alteration of Aristotle's point of view, dropping that special reference to an individual man as Subject, which was present to him when he drew up the list

[a] In the thirteenth and fourteenth chapters of Mr. James Harris's Philosophical Arrangements, there is a learned and valuable illustration of these two last Aristotelian Categories. I think, however, that he gives to the Predicament Κεῖσθαι (*Jacere*) a larger and more comprehensive meaning than it bears in the treatise Categoriæ; and that neither he, nor the commentators whom he cites (p. 317), take sufficient notice of the marked distinction drawn in that treatise between κεῖσθαι and θέσις (Cat. p. 6, b. 12). Mr. Harris ranks the arrangement of words in an orderly discourse, and of propositions in a valid syllogism, as cases coming under the Predicament Κεῖσθαι; which is travelling far beyond the meaning of that word in the Aristotelian Categories. At the same time he brings out strongly the fact, that living beings, and especially *men*, are the true and special subjects of predicates belonging to Κεῖσθαι and Ἔχειν. The more we attend to this, the nearer approach shall we make to the state of Aristotle's mind when he drew up the list of Categories; as indeed Harris himself seems to recognize. (chap. ii. p. 29.)

[b] Aristot. Categor. p. 15, b. 17; Metaphys. Δ. p. 1023, a. 8.

of Ten Categories. The like alteration carried him still farther, so as to omit the ninth and tenth almost entirely, when he discusses the more extensive topics of philosophy. Some of his followers, on the contrary, instead of omitting *Habere* out of the list of Categories, tried to procure recognition for it in the larger sense which it bears in the Metaphysica. Archytas ranked it fifth in the series, immediately after *Relata*.[a]

The narrow manner in which Aristotle conceives the Predicament *Habere* in the treatise Categoriæ, and the enlarged sense given to that term both in the Post-Predicaments and in the Metaphysica, lead to a suspicion that the Categoriæ is comparatively early, in point of date, among his compositions. It seems more likely that he should begin with the narrower view, and pass from thence to the larger, rather than *vice versâ*. Probably the predicates specially applicable to Man would be among his early conceptions, but would by later thought be tacitly dropped,[b] so as to retain those only which had a wider philosophical application.

I have already remarked that Aristotle, while enrolling all the Ten Predicaments as independent heads, each the *Generalissimum* of a separate descending line of predicates, admitted at the same time that various

[a] See the Scholia of Simplikius, p. 80, b. 7, seq.; p. 92, b. 41, Brand.; where the different views of Archytas, Plotinus, and Boëthus, are given; also p. 59, b. 43: *προηγεῖται γὰρ ἡ συμφυὴς τῶν πρός τι σχέσις τῶν ἐπικτήτων σχέσεων, ὡς καὶ τῷ Ἀρχύτᾳ δοκεῖ.* In the language of Archytas, *αἱ ἐπίκτητοι σχέσεις* were the equivalent of the Aristotelian *ἔχειν*.

[b] Respecting the paragraph (at the close of the Categoriæ) about *τὸ ἔχειν*, see the Scholion in Waitz's ed. of the Organon, p. 38.

The fact that Archytas in his treatise presented the Aristotelian Category *ἔχειν* under the more general phrase of *αἱ ἐπίκτητοι σχέσεις* (see the preceding note), is among the reasons for believing that treatise to be later than Aristotle.

predicates did not of necessity belong to one of these lines exclusively, but might take rank in more than one line. There are some which he enumerates under all the different heads of Quality, Relation, Action, Passion. The classification is evidently recognized as one to which we may apply a remark which he makes especially in regard to Quality and Relation, under both of which heads (he says) the same predicates may sometimes be counted.[a] And the observation is much more extensively true than he was aware; for he both conceives and defines the Category of Relation or Relativity (*Ad Aliquid*) in a way much narrower than really belongs to it. If he had assigned to this Category its full and true comprehension, he would have found it implicated with all the other nine. None of them can be isolated from it in predication.

That *Agere* and *Pati* (with the illustrations which he himself gives thereof—*urit*, *uritur*) may be ranked as varieties under the generic Category of Relation or Relativity, can hardly be overlooked. The like is seen to be true about *Ubi* and *Quando*, when we advert to any one of the predicates belonging to either; such as, *in the market-place, yesterday*.[b] Moreover, not merely the last six of the ten Categories, but also the second and fourth (*Quantum* and *Quale*) are implicated with and

[a] Aristot. Categ. p. 11, a. 37.

Simplikius says that what Aristotle admits about ποιότης, is true about all the other Categories also, viz.: that it is not a strict and proper γένος. Each of the ten Categories is (what Aristotle says about τὸ ὄν) *μέσον τῶν τε συνωνύμων καὶ ὁμωνύμων.—οὐδὲ γὰρ ἐκεῖνα κυρίως ἐστὶ γένη, οὐδὲ ὡς γένη τῶν ὑπ' αὐτὰ κατηγορεῖται, τάξεως οὔσης παντοχοῦ πρώτων καὶ δευτέρων.* (Scholia ad Categor. p. 69, b. 30, Br.) This is a remarkable observation, which has not been sufficiently adverted to, I think, by Brentano in his treatise on Aristotle's Ontology.

[b] The remarks of Plotinus upon these four last-mentioned Categories are prolix and vague, but many of them go to shew how much τὸ πρός τι is involved in all of the four (Ennead. vi. 1, 14-18).

subordinated to Relation. If we look at *Quantum*, we shall find that the example which Aristotle gives of it is τριπήχυς, tricubital, or three cubits long; a term quite as clearly relative as the term διπλάσιος or double, which he afterwards produces as instance of the Category *Ad Aliquid*.[a] When we are asked the questions, How much is the height? How large is the field? we cannot give the information required except by a relative predicate — *it is three feet* — *it is four acres*; we thereby carry back the mind of the questioner to some unit of length or superficies already known to him, and we convey our meaning by comparison with such unit. Again, if we turn from *Quantum* to *Quale*, we find the like Relativity implied in all the predicates whereby answer is made to the question Ποιὸς τίς ἐστι; *Qualis est?* What manner of man is he? *He is such as A, B, C*—persons whom we have previously seen, or heard, or read of.[b]

[a] Trendelenburg (Kategorienlehre, p. 184) admits a certain degree of interference and confusion between the Categories of *Quantum* and *Ad Aliquid*; but in very scanty measure, and much beneath the reality.

[b] The following passages from Mr. James Mill (Analysis of the Phenomena of the Human Mind, vol. ii. ch. xiv. sect. ii. pp. 48, 49, 56, 1st ed.) state very clearly the Relativity of the predicates of Quantity and Quality:—

"It seems necessary that I should say something of the word *Quantus*, from which the word Quantity is derived. *Quantus* is the correlate of *Tantus*. *Tantus*, *Quantus*, are relative terms, applicable to all the objects to which we apply the terms Great, Little."—"Of two lines, we call the one *tantus*, the other *quantus*. The occasions on which we do so, are when the one is as long as the other."—"When we say that one thing is *tantus*, *quantus* another, or one so great, as the other is great; the first is referred to the last, the *tantus* to the *quantus*. The first is distinguished and named by the last. The *Quantus* is the standard."—"On what account, then, is it that we give to any thing the name *Quantus*? As a standard by which to name another thing, *Tantus*. The thing called *Quantus* is the previously known thing, the ascertained amount, by which we can mark and define the other amount."

"*Talis*, *Qualis*, are applied to objects in the same way, on one account, as *Tantus*, *Quantus*, on another; and the explanation we gave of *Tantus*, *Quantus*, may be applied, *mutatis mutandis*, to the pair of relatives

We thus see that all the predicates, not only under the Category which Aristotle terms *Ad Aliquid*, but also under all the last nine Categories, are relative. Indeed the work of predication is always relative. The express purpose, as well as the practical usefulness, of a significant predicate is, to carry the mind of the hearer either to a comparison or to a general notion which is the result of past comparisons. But though each predicate connotes Relation, each connotes a certain *fundamentum* besides, which gives to the Relation its peculiar character. Relations of Quantity are not the same as relations of Quality; the predicates of the former connote a *fundamentum* different from the predicates of the latter, though in both the meaning conveyed is relative. In fact, every predicate or concrete general name is relative, or connotes a Relation to something else, actual or potential, beyond the thing named. The only name not relative is the Proper name, which connotes no attributes, and cannot properly be used as a predicate (so Aristotle remarks), but only as a Subject.[a] Sokrates,

which we have now named. *Tantus*, *Quantus*, are names applied to objects on account of dimension. *Talis*, *Qualis*, are names applied to objects on account of all other sensations. We apply *Tantus*, *Quantus*, to a pair of objects when they are equal; we apply *Talis*, *Qualis*, to a pair of objects when they are like. One of the objects is then the standard. The object *Qualis* is that to which the reference is made."

Compare the same work, vol. i. ch. ix. p. 225:—"The word *Such* is a relative term, and always connotes so much of the meaning of some other term. When we call a thing *such*, it is always understood that it is such *as* some other thing. Corresponding with our words *such as*, the Latins had *Talis*, *Qualis*."

[a] You may make Sokrates a predicate, in the proposition, τὸ λευκὸν ἐκεῖνο Σωκράτης ἐστίν, but Aristotle dismisses this as an irregular or perverse manner of speaking (see Analytic. Priora, i. p. 43, a. 35; Analyt. Poster. i. p. 83, a. 2-16).

Alexander calls these propositions *al παρὰ φύσιν προτάσεις* (see Schol. ad Metaphys. Δ. p. 1017, a. 23.)

Mr. James Harris observes (Philosophical Arrangements, ch. x. p. 214; also 317, 348):—"Hence too we may see why Relation stands next to Quantity; for in strictness the Predicaments which follow are but different modes of Relation, marked by some

Kallias, Bukephalus, &c., denotes the *Hoc Aliquid* or *Unum Numero*, which, when pronounced alone, indicates some concrete aggregate (as yet unknown) which may manifest itself to my senses, but does not, so far as the name is concerned, involve necessary reference to anything besides; though even these names, when one and the same name continues to be applied to the same object, may be held to connote a real or supposed continuity of past or future existence, and become thus to a certain extent relative.

We must observe that what the proper name denotes is any certain concrete One and individual,[a] with his attributes essential and non-essential, whatever they may be, though as yet undeclared, and with his capacity of receiving other attributes different and even opposite. This is what Aristotle indicates as the most special characteristic of Substance or Essence, that while it is *Unum et Idem Numero*, it is capable of receiving contraries. This potentiality of contraries, described as characterizing the *Unum et Idem Numero*,[b] is rela-

peculiar character of their own, over and above the relative character, which is common to them all." To which I would add, that the first two Categories, Substance and Quantity, are no less relative or correlative than the eight later Categories; as indeed Harris himself thinks; see the same work, pp. 90, 473: "Matter and Attribute are essentially distinct, yet, like *convex* and *concave*, they are by nature inseparable. We have already spoken as to the inseparability of attributes; we now speak as to that of matter. Ἡμεῖς δὲ φαμὲν μὲν εἶναί τινα ὕλην τῶν σωμάτων τῶν αἰσθητῶν, ἀλλὰ ταύτην οὐ χωριστὴν ἀλλ' ἀεὶ μετ' ἐναντιώσεως —ὕλην τὴν ἀχώριστον μέν, ὑποκειμένην δὲ τοῖς ἐναντίοις (Aristot. De Gen. et Corr. p. 329, a. 24). By contraries, Aristotle means here the several attributes of matter, hot, cold, &c.; from some one or other of which matter is always inseparable."

[a] Simplikius ap. Schol. p. 52, a. 42: πρὸς ὃ φασιν οἱ σπουδαιότεροι τῶν ἐξηγητῶν, ὅτι ἡ αἰσθητὴ οὐσία συμφόρησίς τίς ἐστι ποιοτήτων καὶ ὕλης, καὶ ὁμοῦ μὲν πάντα συμπαγέντα μίαν ποιεῖ τὴν αἰσθητὴν οὐσίαν, χωρὶς δὲ ἕκαστον λαμβανόμενον τὸ μὲν ποιὸν τὸ δὲ ποσόν ἐστι λαμβανόμενον, ἢ τι ἄλλο.

[b] Aristot. Categ. p. 4, a. 10: Μάλιστα δὲ ἴδιον τοῦτο τῆς οὐσίας δοκεῖ εἶναι, τὸ ταὐτὸν καὶ ἓν ἀριθμῷ ὂν τῶν ἐναντίων εἶναι δεκτικόν. See Waitz, note, p. 290: δεκτικὸν dicitur τὸ ἐν ᾧ πέφυκεν ὑπάρχειν τι.

Dexippus, and after him Simplikius, observe justly, that the characteristic

tive to something about to come; the First Essence is doubtless logically First, but it is just as much relative to the Second, as the Second to the First. We know it only by two negations and one affirmation, all of which are relative to predications *in futuro*. It is neither in a Subject, nor predicable of a Subject. It is itself the ultimate Subject of all predications and all inherencies. Plainly, therefore, we know it only relatively to these predications and inherencies. Aristotle says truly, that if you take away the First Essences, everything else, Second Essences as well as Accidents, disappears along with them. But he might have added with equal truth, that if you take away all Second Essences and all Accidents, the First Essences will disappear equally. The correlation and interdependence is reciprocal.[a] It may be suitable, with a view to clear and retainable philosophical explanation, to state the Subject first and the predicates afterwards; so that the Subject may thus be considered as logically *prius*. But in truth the Subject is only a *substratum* for predicates,[b] as much as the predicates are *superstrata* upon the Subject. The term *substratum* designates not an absolute or a *per se*, but a *Correlatum* to certain *superstrata*, determined or undetermined: now the

mark of *πρώτη οὐσία*, is this very circumstance of being *unum numero*, which belongs in common to all *πρῶται οὐσίαι*, and is indicated by the Proper name: *λύσις δὲ τούτου, ὅτι αὐτὸ τὸ μίαν εἶναι ἀριθμῷ, κοινός ἐστι λόγος*. (Simpl. in Categor., fol. 22 Δ.; Dexippus, book ii. sect. 18, p. 57, ed. Spengel.)

[a] Aristot. Categ. p. 2, b. 5. *μὴ οὐσιῶν οὖν τῶν πρώτων οὐσιῶν ἀδύνατον τῶν ἄλλων τι εἶναι.*

Mr. John Stuart Mill observes: "As to the self-existence of Substance, it is very true that a substance may be conceived to exist without any other substance; but so also may an attribute without any other attributes. And we can no more imagine a substance without attributes, than we can imagine attributes without a substance." (System of Logic, bk. i. ch. iii. p. 61, 6th ed.).

[b] Aristot. Physic. ii. p. 194, b. 8. *ἔτι τῶν πρός τι ἡ ὕλη· ἄλλῳ γὰρ εἴδει ἄλλη ὕλη.*

Correlatum is one of the pair implicated directly or indirectly in all Relation; and it is in fact specified by Aristotle as one variety of the Category *Ad Aliquid*.[a] We see therefore that the idea of Relativity attaches to the first of the ten Categories, as well as to the nine others. The inference from these observations is, that Relation or Relativity, understood in the large sense which really belongs to it, ought to be considered rather as an Universal, comprehending and pervading all the Categories, than as a separate Category in itself, co-ordinate with the other nine. It is the condition and characteristic of the work of predication generally; the last analysis of which is into Subject and Predicate, in reciprocal implication with each other. I remark that this was the view taken of it by some well-known Peripatetic commentators of antiquity;[b] by Andronikus, for example, and by Ammonius after him. Plato, though

Plotinus puts this correctly, in his criticisms on the Stoic Categories; criticisms which on this point equally apply to the Aristotelian: *πρός τι γὰρ τὸ ὑποκείμενον, οὐ πρὸς τὸ ἐν αὐτῷ, ἀλλὰ πρὸς τὸ ποιοῦν εἰς αὐτό, κείμενον. Καὶ τὸ ὑποκείμενον ὑποκεῖται πρὸς τὸ οὐχ ὑποκείμενον· εἰ τοῦτο, πρὸς τὰ τὸ ἕξω*, &c. Also Dexippus in the Scholia ad Categor. p. 45, a. 26: *τὸ γὰρ ὑποκείμενον κατὰ πρός τι λέγεσθαι ἐδόκει, τινὶ γὰρ ὑποκείμενον.*

[a] Aristot. Metaphys. Δ. p. 1020, b. 31, p. 1021, a. 27, seq.

[b] Schol. p. 60, a. 38, Br.; p. 47, b. 26. Xenokrates and Andronikus included all things under the two heads *τὸ καθ' αὑτὸ* and *τὸ πρός τι*. *Ἀνδρόνικος μὲν γὰρ ὁ Ῥόδιος τελευταίαν ἀπονέμει τοῖς πρός τι τάξιν, λέγων αἰτίαν τοιαύτην. τὰ πρός τι οἰκείαν ὕλην οὐκ ἔχει· παραφυάδι γὰρ ἔοικεν οἰκείαν φύσιν μὴ ἐχούσῃ ἀλλὰ περιπλεκομένῃ τοῖς ἔχουσιν οἰκείαν ῥίζαν· αἱ δὲ ἔννεα κατηγορίαι οἰκείαν ὕλην ἔχουσιν εἰκότως οὖν τελευταίας ἄφειλον ἔχειν τάξιν.* Again, Schol. p. 60, a. 24 (Ammonius): *καλῶς δέ τινες ἀπεικάζουσι τὰ πρός τι παραφυάσιν*, &c. Also p. 59, b. 41; p. 49, a. 47; p. 61, b. 29: *ἴσως δὲ καὶ ὅτι τὰ πρός τι ἐν τοῖς ἄλλοις γένεσιν ὑφέστηκε, διὰ τοῦτο σὺν αὐτοῖς θεωρεῖται, κἂν μὴ προηγουμένης ἔτυχε μνήμης* (and the Scholia ad p. 6, a. 36, prefixed to Waitz's edition, p. 33). Also p. 62, a. 37: *διὰ ταῦτα δὲ ὡς παραφυομένην ταῖς ἄλλαις κατηγορίαις τὴν τοῦ πρός τι ἐπεισοδιώδη νομίζουσι, καίτοι προηγουμένην οὖσαν καὶ κατὰ διαφορὰν οἰκείαν θεωρουμένην.* Boëthus had written an entire book upon *τὰ πρός τι*, Schol. p. 61, b. 9.

he makes no attempt to draw up a list of Categories, has an incidental passage respecting Relativity;[a] conceiving it in a very extended sense, apparently as belonging more or less to all predicates. Aristotle, though in the Categoriæ he gives a narrower explanation of it, founded upon grammatical rather than real considerations, yet intimates in other places that predicates ranked under the heads of *Quale*, *Actio*, *Passio*, *Jacere*, &c., may also be looked at as belonging to the head of *Ad Aliquid*.[b] This latter, moreover, he himself declares elsewhere to be *Ens* in the lowest degree, farther removed from the *Prima Essentia* than any of the other Categories; to be more in the nature of an appendage to some of them, especially to *Quantum* and *Quale*;[c] and to presuppose, not only the *Prima Essentia* (which all the nine later Categories presuppose), but also one or more of the others,

[a] Plato, Republic, iv. 437 C. to 439 B. (compare also Sophistes, p. 255 C., and Politicus, p. 285). Καὶ τὰ πλείω δὴ πρὸς τὰ ἐλάττω καὶ τὰ διπλάσια πρὸς τὰ ἡμίσεα καὶ πάντα τὰ τοιαῦτα, καὶ αὖ βαρύτερα πρὸς κουφότερα καὶ θάττω πρὸς βραδύτερα, καὶ ἔτι γε τὰ θερμὰ πρὸς τὰ ψυχρὰ καὶ πάντα τὰ τούτοις ὅμοια, ἆρ' οὐχ οὕτως ἔχει; (438 C).

[b] See Metaphysic. Δ. p. 1020, b. 26, p. 1021, b. 10. Trendelenburg observes (Gesch. der Kategorienlehre, pp. 118-122, seq.) how much more the description given of πρός τι in the Categoriæ is determined by verbal or grammatical considerations, than in the Metaphysica and other treatises of Aristotle.

[c] See Ethic. Nikomach. i. p. 1096, a. 20: τὸ δὲ καθ' αὑτὸ καὶ ἡ οὐσία πρότερον τῇ φύσει τοῦ πρός τι· παραφυάδι γὰρ τοῦτ' ἔοικε καὶ συμβεβηκότι τοῦ ὄντος, ὥστε οὐκ ἂν εἴη κοινή τις ἐπὶ τούτων ἰδέα. (The expression παραφυάδι was copied by Andronikus; see a note on the preceding page.) Metaphys. N. p. 1088, a. 22-26: τὸ δὲ πρός τι πάντων ἥκιστα φύσις τις ἡ οὐσία τῶν κατηγοριῶν ἐστί, καὶ ὑστέρα τοῦ ποιοῦ καὶ ποσοῦ· καὶ πάθος τι τοῦ ποσοῦ τὸ πρός τι, ὥσπερ ἐλέχθη, ἀλλ' οὐχ ὕλη, εἴ τι ἕτερον καὶ τῷ ὅλως κοινῷ πρός τι καὶ τοῖς μέρεσιν αὐτοῦ καὶ εἴδεσιν. Compare Bonitz in his note on p. 1070, a. 33.

The general doctrine laid down by Aristotle, Metaphys. N. p. 1087, b. 34, seq., about the universality of μέτρον as pervading all the Categories, is analogous to the passage above referred to in the Politicus of Plato, and implies the Relativity involved more or less in all predicates.

indicating the particular mode of comparison or Relativity in each case affirmed. Thus, under one aspect, Relation or Relativity may be said to stand *prius naturâ*, and to come first in order before all the Categories, inasmuch as it is implicated with the whole business of predication (which those Categories are intended to resolve into its elements), and belongs not less to the mode of conceiving what we call the Subject, than to the mode of conceiving what we call its Predicates, each and all. Under another aspect, Relativity may be said to stand last in order among the Categories—even to come after the adverbial Categories *Ubi et Quando*; because its *locus standi* is dim and doubtful, and because every one of the subordinate predicates belonging to it may be seen to belong to one or other of the remaining Categories also. Aristotle remarks that the Category *Ad Aliquid* has no peculiar and definite mode of generation corresponding to it, in the manner that Increase and Diminution belong to *Quantum*, Change to *Quale*, Generation, simple and absolute, to Essence or Substance.[a] New relations may become predicable of a thing, without any change in the thing itself, but simply by changes in other things.[b]

[a] Aristot. Metaph. N. p. 1088, a. 29: *σημεῖον δὲ ὅτι ἥκιστα οὐσία τις καὶ ὂν τι τὸ πρός τι τὸ μόνον μὴ εἶναι γένεσιν αὐτοῦ μηδὲ φθορὰν μηδὲ κίνησιν, ὥσπερ κατὰ τὸ ποσὸν αὔξησις καὶ φθίσις, κατὰ τὸ ποιὸν ἀλλοίωσις, κατὰ τόπον φορά, κατὰ τὴν οὐσίαν ἡ ἁπλῆ γένεσις καὶ φθορά.* Compare K. p. 1068, a. 9: *ἀνάγκη τρεῖς εἶναι κινήσεις, ποιοῦ, ποσοῦ, τόπου. κατ' οὐσίαν δ' οὔ, διὰ τὸ μηθὲν εἶναι οὐσίᾳ ἐναντίον, οὐδὲ τοῦ πρός τι.* Also Physica, v. p. 225, b. 11: *ἐνδέχεται γὰρ θατέρου μεταβάλλοντος ἀληθεύεσθαι θάτερον μηδὲν μετάβαλλον.* See about this passage Bonitz and Schwegler's notes on Metaphys. p. 1068.

[b] Hobbes observes (First Philosophy, part ii. ch. xi. 6): "But we must not so think of Relation as if it were an accident differing from all the other accidents of the relative; but one of them, namely, that by which the comparison is made. For example, the likeness of one white to another white, or its unlikeness to black, is the same accident with its whiteness." This may be true about the relations Like and Unlike (see Mr. John Stuart Mill, Logic, ch. iii.

Those among the Aristotelian commentators who denied the title of *Ad Aliquid* to a place among the Categories or *Summa Genera* of predicates, might support their views from passages where Aristotle ranks the Genus as a *Relatum*, though he at the same time declares that the Species under it are not *Relata*. Thus *scientia* is declared by him to be a *Relatum*; because it must be *of something — alicujus scibilis*; while the *something* thus implied is not specified.[a] But (*scientia*) *musica*, *grammatica*, *medica*, &c., are declared not to be *Relata*; the indeterminate *something* being there determined, and bound up in one word with the predication of Relativity. Now the truth is that both are alike *Relata*, though both also belong to the Category of Quality; a man is called *Talis* from being *sciens*, as well as from being *grammaticus*. Again, he gives as illustrative examples of the Category *Ad Aliquid*, the adjectives double, triple. But he ranks in a different Category (that of *Quantum*) the adjectives bicubital, tricubital, (διπήχυς, τριπήχυς). It is plain that the two last of these predicates are species under the two first, and that all four predicates are alike relative, under any real definition that

p. 80, 6th ed.) But, in Relations generally, the *fundamentum* may be logically distinguished from the Relation itself.

Aristotle makes the same remarks upon τὸ συμβεβηκὸς as upon τὸ πρός τι:—That it verges upon Non-Ens; and that it has no special mode of being generated or destroyed. φαίνεται γὰρ τὸ συμβεβηκὸς ἐγγύς τι τοῦ μὴ ὄντος· τῶν μὲν γὰρ ἄλλον τρόπον ὄντων ἔστι γένεσις καὶ φθορά, τῶν δὲ κατὰ συμβεβηκὸς οὐκ ἔστιν. (Metaphys. E. p. 1026, b. 21.)

[a] Categor. p. 6, b. 12, p. 11, a. 24; Topic. iv. p. 124, b. 16. Compare also Topica, iv. p. 121, a. 1, and the Scholia thereupon, p. 278, b. 12-16, Br.; in which Scholia Alexander feels the difficulty of enrolling a generic term as πρός τι, while the specific terms comprised under it are not πρός τι; and removes the difficulty by suggesting that ἐπιστήμη may be at once both ποιότης and πρός τι; and that as ποιότης (not as πρός τι) it may be the genus including μουσικὴ and γεωμετρία, which are not πρός τι, but ποιότητες.

can be given of Relativity, though all four belong also to the Category of *Quantum*. Yet Aristotle does not recognize any predicates as belonging to *Ad Aliquid*, except such as are logically and grammatically elliptical; that is, such as do not include in themselves the specification of the Correlate, but require to be supplemented by an additional word in the genitive or dative case, specifying the latter. As we have already seen, he lays it down generally, that all *Relata* (or *Ad Aliquid*) imply a *Correlatum*; and he prescribes that when the *Correlatum* is indicated, care shall be taken to designate it by a precise and specific term, not of wider import than the *Relatum*,[a] but specially reciprocating therewith: thus he regards *ala* (a wing) as *Ad Aliquid*, but when you specify its correlate in order to speak with propriety (*οἰκείως*), you must describe it as *ala alati*, (not as *ala avis*) in order that the *Correlatum* may be strictly co-extensive and reciprocating with the *Relatum*. Wing, head, hand, &c., are thus *Ad Aliquid*, though there may be no received word in the language to express their exact *Correlata*; and though you may find it necessary to coin a new word expressly for the purpose.[b] In specifying the *Correlatum* of servant, you must say, servant of *a master*, not servant of a man or of a biped; both of which are in this case accompaniments or accidents of the master, being still accidents, though they may be in fact constantly conjoined. Unless you say master, the terms will not reciprocate; take away master, the servant is no longer to be found, though the man who was called *servant* is still there; but take

[a] Categor. p. 6, b. 30, p. 7, b. 12.

[b] Categor. p. 7, a. 5. *ἐνίοτε δὲ ὀνοματοποιεῖν ἴσως ἀναγκαῖον, ἐὰν μὴ κείμενον ᾖ ὄνομα πρὸς ὃ οἰκείως ἂν ἀποδοθείη.*

away man or biped, and the servant may still continue.[a] You cannot know the *Relatum* determinately or accurately, unless you know the *Correlatum* also; without the knowledge of the latter, you can only know the former in a vague and indefinite manner.[b] Aristotle raises, also, the question whether any Essence or Substance can be described as *Ad Aliquid*.[c] He inclines to the negative, though not decisively pronouncing. He seems to think that Simo and Davus, when called men, are Essences or Substances; but that when called master and slave, they are not so; this, however, is surprising, when he had just before spoken of the connotation of man as accidents (*συμβεβηκότα*) belonging to the connotation of master. He speaks of the members of an organized body (wing, head, foot) as

[a] Categor. p. 7, a. 31. *ἔτι δ' ἐὰν μέν τι οἰκείως ἀποδιδόμενον ᾖ πρὸς ὃ λέγεται, πάντων περιαιρουμένων τῶν ἄλλων ὅσα συμβεβηκότα ἐστί, καταλειπομένου δὲ μόνου τούτου πρὸς ὃ ἀπεδόθη οἰκείως, ἀεὶ πρὸς αὐτὸ ῥηθήσεται, οἷον ὁ δοῦλος ἐὰν πρὸς δεσπότην λέγηται, περιαιρουμένων τῶν ἄλλων ἁπάντων ὅσα συμβεβηκότα ἐστὶ τῷ δεσπότῃ, οἷον τὸ δίποδι εἶναι καὶ τὸ ἐπιστήμης δεκτικῷ καὶ τὸ ἀνθρώπῳ, καταλειπομένου δὲ μόνου τοῦ δεσπότην εἶναι, ἀεὶ ὁ δοῦλος πρὸς αὐτὸ ῥηθήσεται.*

This is not only just and useful in regard to accuracy of predication, but deserves attention also in another point of view. In general, it would be said that *man* and *biped* belonged to the Essence (*οὐσία*); and the *being a master* to the Accidents or Accompaniments (*συμβεβηκότα*). Here the case is reversed; man and biped are the accidents or accompaniments; master is the Essence. What is connoted by the term *master* is here the essential idea, that which is bound up with the idea connoted by *servant*; while the connotation of *man* or *biped* sinks into the character of an accessory or accompaniment. The master might possibly not be a man, but a god; the Delphian Apollo (Euripid. Ion, 132), and the Corinthian Aphrodité, had each many slaves belonging to them. Moreover, even if every master were a man, the qualities connoted by *man* are here accidental, as not being included in those connoted by the term master. Compare Metaphysica, Δ. p. 1025, a. 32; Topica, i. p. 102, a. 18.

[b] That Plato was fully sensible to the necessity of precision and appropriateness in designating the *Correlatum* belonging to each *Relatum*, may be seen by the ingenious reasoning in the Platonic Parmenides, pp. 133-134, where *δεσπότης* and *δοῦλος* are also the illustrative examples employed.

[c] Categor. p. 8, a. 35, b. 20.

examples of *Ad Aliquid*; while in other treatises, he determines very clearly that these members presuppose, as a *prius naturâ*, the complete organism whereof they are parts, and that the name of each member connotes the performance of, or aptitude to perform, a certain special function: now, such aptitude cannot exist unless the whole organism be held together in co-operative agency, so that if this last condition be wanting, the names, head, eye, foot, can no longer be applied to the separate members, or at least can only be applied equivocally or metaphorically.[a] It would seem therefore that the functioning *something* is here the Essence, and that all its material properties are accidents (*συμβεβηκότα*).

In the fourth book of the Metaphysica, Aristotle gives an explanation of *Ad Aliquid* different from, and superior to, that which we read in the Categoriæ; treating it, not as one among many distinct Categories, but as implicated with all the Categories, and taking a different character according as it is blended with one or the other — *Essentia*, *Quantum*, *Quale*, *Actio*, *Passio*, *&c.*[b] He there, also, enumerates

[a] See Politica, i. p. 1253, a. 18: *καὶ πρότερον δὴ τῇ φύσει πόλις ἢ οἰκία καὶ ἕκαστος ἡμῶν ἐστίν· τὸ γὰρ ὅλον πρότερον ἀναγκαῖον εἶναι τοῦ μέρους· ἀναιρουμένου γὰρ τοῦ ὅλου οὐκ ἔσται ποῦς οὐδὲ χείρ, εἰ μὴ ὁμωνύμως, ὥσπερ εἴ τις λέγει τὴν λιθίνην· διαφθαρεῖσα γὰρ ἔσται τοιαύτη. πάντα δὲ τῷ ἔργῳ ὁρίσται καὶ τῇ δυνάμει, ὥστε μηκέτι τοιαῦτα ὄντα οὐ λεκτέον τὰ αὐτὰ εἶναι, ἀλλ' ὁμώνυμα*; also p. 1254, a. 9: *τό τε γὰρ μόριον οὐ μόνον ἄλλου ἐστὶ μόριον, ἀλλὰ καὶ ἄλλου.*

Compare De Animâ, ii. 1, p. 412, b. 20; Meteorologic. iv. p. 390, a. 12.

The doctrine enunciated in these passages is a very important one, in the Aristotelian philosophy.

Trendelenburg (Kategorienlehre, p. 182) touches upon this confusion of the Categories, but faintly and partially.

[b] Metaphys. Δ. p. 1020, b. 27-32. At the same time we must remark, that while Aristotle enumerates *τὸ ὑπέρεχον* and *τὸ ὑπερεχόμενον* under *Πρός τι*, he had just before (a. 25) ranked *τὸ μέγα καὶ τὸ μικρόν, τὸ μεῖζον καὶ τὸ ἔλαττον*, under the general head *Ποσόν*— as *ποσοῦ πάθη καθαυτά*.

as one of the varieties of *Relata*, what seems to go beyond the limit, or at least beyond the direct denotation, of the Categories; for, having specified, as one variety, *Relata Numero*, and, as another, *Relata secundum actionem et passionem* (τὸ θερμαντικὸν πρὸς τὸ θερμαντόν, &c.), he proceeds to a third variety, such as the *mensurabile* with reference to *mensura*, the *scibile* with reference to *scientia*, the *cogitabile* with reference to *cogitatio*; and in regard to this third variety, he draws a nice distinction. He says that *mensura* and *cogitatio* are *Ad Aliquid*, not because they are themselves related to *mensurabile* and *cogitabile*, but because *mensurabile* and *cogitabile* are related to them.[a] You cannot say (he thinks) that *mensura* is referable to the *mensurabile*, or *cogitatio* to the *cogitabile*, because that would be repeating the same word twice over — *mensura est*

[a] Metaphys. Δ. p. 1021, a. 26, b. 3; also I. p. 1056, b. 34. Bonitz in his note (p. 262) remarks that the distinction here drawn by Aristotle is not tenable; and I agree with him that it is not. But it coincides with what Aristotle asserts in other words in the Categoriæ; viz., that to be *simul naturâ* is not true of *all* Relata, but only of the greater part of them; that τὸ αἰσθητὸν is πρότερον τῆς αἰσθήσεως, and τὸ ἐπιστητὸν πρότερον τῆς ἐπιστήμης (Categor. p. 7, b. 23; p. 8, a. 10). As I have mentioned before (p. 102 n.), Simplikius, in the Scholia (p. 65, b. 14), points out that Aristotle has not been careful here to observe his own precept of selecting οἰκείως the correlative term. He ought to have stated the potential as correlating with the potential, the actual with the actual. If he had done this, the συνύπαρξις τῶν πρός τι would have been seen to be true in all cases. Eudorus noticed a similar inadvertence of Aristotle in the case of πτέρον and πτερωτόν (Schol. 63, a. 43). See 'Plato and the Other Companions of Sokrates,' vol. ii. p. 330, note[a].

I transcribe a curious passage of Leibnitz, bearing on the same question:— "On réplique maintenant, que la vérité du mouvement est indépendante de l'observation: et qu'un vaisseau peut avancer, sans que celui qui est dedans s'en aperçoive. Je réponds, que le mouvement est indépendant de l'observation: mais qu'il *n'est point indépendant de l'observabilité*. Il n'y a point de mouvement, quand il n'y a point de changement *observable*. Et même quand il n'y a point de changement observable, il n'y a point de changement du tout. Le contraire est fondé sur la supposition d'un Espace réel absolu, que j'ai réfuté demonstrativement par le principe du besoin d'une Raison suffisante des choses." (Correspondence with Clarke, p. 770. Erdmann's edition.)

illius cujus est mensura—cogitatio est illius cujus est cogitatio. So that he regards *mensura* and *cogitatio* as *Correlata*, rather than as *Relata*; while *mensurabile* and *cogitabile* are the *Relata* to them. But in point of fact, the distinction is not important; of the relative pair there may be one which is more properly called the *Correlatum*; yet both are alike relative.

If we compare together the various passages in which Aristotle cites and applies the Ten Categories, (not merely in the treatise before us, but also in the Metaphysica, Physica, and elsewhere) we shall see that he cannot keep them apart steadily and constantly; that the same predicate is referred to one head in one place, and to another head in another: what is here spoken of as belonging to *Actio* or *Passio*, will be treated in another place as an instance of *Quale* or *Ad Aliquid*; even the derivative noun ἕξις (*habitus*) does not belong to the Category ἔχειν (*Habere*), but sometimes to *Quale*, sometimes to *Ad Aliquid*.* This is inevitable; for the predicates thus differently referred have really several different aspects, and may be classified in one way or another, according as you take them in this or that aspect. Moreover, this same difficulty of finding impassable lines of demarcation would still be felt, even if the Categories, instead of the full list of Ten, were reduced to the smaller list of the four principal Categories—Substance, Quantity, Quality, and Relation; a reduction which has been recommended by commentators on Aristotle as well as by acute logicians of modern times. Even these four cannot be kept clearly apart: the predicates which declare Quantity or Quality must at the same time declare or imply Relation; while the predicates which declare Relation

* Aristot. Categor. p. 6, b. 2; p. 8, b. 27.

must also imply the *fundamentum* either of Quantity or of Quality.*

The most capital distinction, however, which is to be found among the Categories is that of Essence or Substance from all the rest. This is sometimes announced

* See Trendelenburg, Kategorienlehre, p. 117, seq.

The remarks made by Mr. John Stuart Mill (in his System of Logic, book i. ch. iii.) upon the Aristotelian Categories, and the enlarged philosophical arrangement which he introduces in their place, well deserve to be studied. After enumerating the ten Predicaments, Mr. Mill says:—"It is a mere catalogue of the distinctions rudely marked out by the language of familiar life, with little or no attempt to penetrate, by philosophic analysis, to the *rationale* even of these common distinctions. Such an analysis would have shewn the enumeration to be both redundant and defective. Some objects are omitted, and others repeated several times under different heads." (Compare the remarks of the Stoic commentators, and Porphyry, Schol. p. 48, b. 10 Br.: *ἀθετοῦντες τὴν διαίρεσιν ὡς πολλὰ παρεῖσαν καὶ μὴ περιλαμβάνουσαν, ἢ καὶ πάλιν πλεονάζουσαν.* And Aristotle himself observes that the same predicates might be ranked often under more than one head.) "That could not be a very comprehensive view of the nature of Relation, which could exclude action, passivity, and local situation from that category. The same objection applies to the categories Quando (or position in time), and Ubi (or position in space); *while the distinction between the latter and Situs* (Κεῖσθαι) *is merely verbal.* The incongruity of erecting into a *summum genus* the tenth Category is manifest. On the other hand, the enumeration takes no notice of any thing but Substances and Attributes. In what Category are we to place sensations, or any other feelings and states of mind? as hope, joy, fear; sound, smell, taste; pain, pleasure; thought, judgment, conception, and the like? Probably all these would have been placed by the Aristotelian school in the Categories of Actio and Passio; and the relation of such of them as are active, to their objects, and of such of them as are passive, to their causes, would have been rightly so placed; but the things themselves, the feelings or states of mind, wrongly. Feelings, or states of consciousness, are assuredly to be counted among realities; but they cannot be reckoned either among substances or among attributes."

Among the many deficiencies of the Aristotelian Categories, as a complete catalogue, there is none more glaring than the imperfect conception of Πρός τι (the Relative), which Mr. Mill here points out. But the Category Κεῖσθαι (badly translated by commentators *Situs*, from which Aristotle expressly distinguishes it, Categor. p. 6, b. 12: *τὸ δὲ ἀναπεῖσθαι ἢ ἑστάναι ἢ καθῆσθαι αὐτὰ μὲν οὐκ εἰσὶ θέσεις*) appears to be hardly open to Mr. Mill's remark, that it is only verbally distinguished from Ποῦ, *Ubi*. Κεῖσθαι is intended to mean *posture, attitude*, &c. It is a reply to the question, In what posture is Sokrates? Answer.—He is lying down, standing upright, kneeling, *πὺξ προτείνων*, &c. This is quite different from the question, Where

as having a standing *per se*; as not only logically distinguishable, but really separable from the other nine, if we preserve the Aristotelian list of ten,* or from the other three, if we prefer the reduced list of four. But such real separation cannot be maintained. The *Prima Essentia* (we are told) is indispensable as a Subject, but

is Sokrates? In the market-place, in the palæstra, &c. Κεῖσθαι (as Aristotle himself admits, Categ. p. 6, b. 12) is not easily distinguished from Πρός τι: for the abstract and general word θέσις (*position*) is reckoned by Aristotle under Πρός τι, though the *paronyma* ἀνακεῖσθαι, ἑστάναι, καθῆσθαι, are affirmed not to be θέσεις, but to come under the separate Category Κεῖσθαι. But Κεῖσθαι is clearly distinguishable from Ποῦ *Ubi*.

Again, to Mr. Mill's question, "In what Category are we to place sensations or other states of mind—hope, fear, sound, smell, pain, pleasure, thought, judgment," &c.? Aristotle would have replied (I apprehend) that they come under the Category either of *Quale* or of *Pati*—Ποιότητες or Πάθη. They are attributes or modifications of Man, Kallias, Sokrates, &c. If the condition of which we speak be temporary or transitory, it is a πάθος, and we speak of Kallias as πάσχων τι; if it be a durable disposition or capacity, likely to pass into repeated manifestations, it is ποιότης, and we describe Kallias as ποιός τις (Categ. p. 9, a. 28-p. 10, a. 9). This equally applies to mental and bodily conditions (ὁμοίως δὲ τούτοις καὶ κατὰ τὴν ψυχὴν παθητικαὶ ποιότητες καὶ πάθη λέγεται.—p. 9, b. 33). The line is dubious and difficult between πάθος and ποιότης, but one or other of the two will comprehend all the mental states indicated by Mr. Mill. Aristotle would not have admitted that "feelings are to be counted among realities," except as they are now or may be the feelings of Kallias, Sokrates, or some other *Hic Aliquis*—one or many. He would consider feelings as attributes belonging to these Πρῶται Οὐσίαι; and so in fact Mr. Mill himself considers them (p. 83), after having specified the Mind (distinguished from Body or external object) as the Substance to which they belong.

Mr. Mill's classification of Nameable Things is much better and more complete than the Aristotelian Categories, inasmuch as it brings into full prominence the distinction between the subjective and objective points of view, and, likewise, the all-pervading principle of Relativity, which implicates the two; whereas, Aristotle either confuses the one with the other, or conceives them narrowly and inadequately. But we cannot say, I think, that Aristotle, in the Categories, assigns no room for the mental states or elements. He has a place for them, though he treats them altogether objectively. He takes account of *himself* only as an object—as one among the πρῶται οὐσίαι, or individuals, along with Sokrates and Kallias.

* Aristotle sometimes speaks of it as χωριστόν, the other Categories being not χωριστά (Metaphys. Z. p. 1028, a. 34). It is not easy, however, always to distinguish whether he means by the term χωριστὰ "*sejuncta re*, or *sejuncta notione solâ*." See Bonitz ad Metaphysic. (Δ. p. 1017), p. 244.

cannot appear as Predicate; while all the rest can and do so appear. Now we see that this definition is founded upon the function enacted by each of them in predication, and therefore presupposes the fact of predication, which is in itself a Relation. The Category of Relation is thus implied, in declaring what the First Essence is, together with some *predicabilia* as correlates, though it is not yet specified what the *predicabilia* are. But besides this, the distinction drawn by Aristotle, between First and Second Essence or Substance, abolishes the marked line of separation between Substance and Quality, making the former shade down into the latter. The distinction recognizes a more or less in Substance, which graduation Aristotle expressly points out, stating that the Species is *more* Substance or Essence, and the Genus *less* so. We see thus that he did not conceive Substance (apart from attributes) according to the modern view, as that which exists *without* the mind (excluding *within* the mind or *relation to* the mind); for in that there can be no graduation. That which is without the mind, must also be within; and that which is within must also be without; the subject and the object correlating. This implication of within and without understood, there is then room for graduation, according as the one or the other aspect may be more or less prominent. Aristotle, in point of fact, confines himself to the mental or logical work of predication, to the conditions thereof, and to the component terms whereby the mind accomplishes that act. When he speaks of the First Essence or Substance, without the Second, all that he can say about it positively is to call it *Unum numero* and indivisible:* even

* Categor. p. 3, b. 12: ἄτομον γὰρ καὶ ἓν ἀριθμῷ τὸ δηλούμενόν ἐστιν. Compare Metaphysic. N. p. 1087, b. 33; p. 1088, a. 10.

thus, he is compelled to introduce unity, measure, and number, all of which belong to the two Categories of Quantity and Relation; and yet still the First Essence or Substance remains indeterminate. We only begin to determine it when we call it by the name of the Second Substance or Essence; which name connotes certain attributes, the attributes thus connoted being of the essence of the Species; that is, unless they be present, no individual would be considered as belonging to the Species, or would be called by the specific name.[a] When we thus, however, introduce attributes, we find ourselves not merely in the Category of *Substantia* (*Secunda*), but also in that of *Qualitas*. The boundary between *Substantia* and *Qualitas* disappears; the latter being partially contained in the former. The Second Substance or Essence includes attributes or Qualities belonging to the Essence. In fact, the Second Substance or Essence, when distinguished from the First, is both here and elsewhere characterized by Aristotle, as being not Substance at all, but Quality;[b] though when con-

[a] Hobbes says:—"Now that accident (*i. e.* attribute) for which we give a certain name to any body, or the accident which denominates its Subject, is commonly called the Essence thereof; as rationality is the essence of a man, whiteness of any white thing, and extension the essence of a body" (Hobbes, Philosophy, ch. viii. s. 23). This topic will be found discussed, most completely and philosophically, in Mr. John Stuart Mill's System of Logic, Book I. ch. vi. ss. 2-3; ch. vii. s. 5.

[b] Categor. p. 3, b. 13: *ἐπὶ δὲ τῶν δευτέρων οὐσιῶν φαίνεται μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ ἄνθρωπον ἢ ζῷον, οὐ μὴν ἀληθές γε, ἀλλὰ μᾶλλον ποιόν τι σημαίνει—ποιὰν γάρ τινα οὐσίαν σημαίνει* (b. 20).

Metaphysic. Z. p. 1038, b. 35: *φανερὸν ὅτι οὐθὲν τῶν καθόλου ὑπαρχόντων οὐσία ἐστί, καὶ ὅτι οὐθὲν σημαίνει τῶν κοινῇ κατηγορουμένων τόδε τι, ἀλλὰ τοιόνδε.* Compare Metaphys. M. p. 1087, a. 1; Sophistic. Elench. p. 178, b. 37; 179, a. 9.

That which is called *πρώτη οὐσία* in the Categoriæ is called *τρίτη οὐσία* in Metaphys. H. p. 1043, a. 18. In Ethic. Nikom. Z. p. 1143, a. 32, seq., the *generalissima* are called *πρῶτα*, and particulars are called *ἔσχατα*. Zell observes in his commentary (p. 224), "*τὰ ἔσχατα* sunt res singulæ, quæ et ipsæ sunt extremæ, ratione mentis nostræ, ab universis ad singula dela-

sidered as being in implication with the First, it takes on the nature of Substance, and becomes substantial or essential Quality. The Differentia belongs thus both to Substance and to Quality (*quale quid*), making up as complement that which is designated by the specific name.*

We see, accordingly, that neither is the line of demarcation between the Category of Substance or Essence and the other Categories so impassable, nor the separability of it from the others so marked as some thinkers contend. Substance is represented by Aristotle as admitting of more and less, and as graduating by successive steps down to the other Categories; moreover, neither in its complete manifestation (as First Substance), nor in its incomplete manifestation (as Second Substance), can it be explained or understood without calling in the other Categories of Quantity, Quality, and Relation. It does not correspond to the definition of *Substantia* given by Spinoza—"*quod in se est et per se concipitur*." It can no more be conceived or described without some of the other Categories, than they can be conceived or described without it. Aristotle defines it by four characteristics, two negative, and two positive. It cannot be predicated of a Subject: it cannot inhere in a Subject: it is, at bottom, the Subject

bentis." Patricius remarks upon the different sense of the terms Πρώτη Οὐσία in the Categoriæ and in the De Interpretatione (Discuss. Peripatetic. p. 21).

* Metaphysic. Δ. p. 1020, b. 13: σχεδὸν δὴ κατὰ δύο τρόπους λέγοιτ' ἂν τὸ ποιόν, καὶ τούτων ἕνα τὸν κυριώτατον· πρώτη μὲν γὰρ ποιότης ἡ τῆς οὐσίας διαφορά. Compare Physic. v. p. 226, a. 27. See Trendelenburg, Kategorienlehre, pp. 56, 93.

The remarks of the different expositors (contained in Scholia, pp. 52, 53, 54, Brand.), are interesting upon the ambiguous position of Differentia, in regard to Substance and Quality. It comes out to be Neither and Both—οὐδέτερα καὶ ἀμφότερα (Plato, Euthydemus, p. 300 C.). Dexippus and Porphyry called it something intermediate between οὐσία and ποιότης, or between οὐσία and συμβεβηκός.

of all Predicates: it is *Unum numero* and indivisible.[a] Not one of these four determinations can be conceived or understood, unless we have in our minds the idea of other Categories and its relation to them. Substance is known only as the Subject of predicates, that is, relatively to them; as they also are known relatively to it. Without the Category of Relation, we can no more understand what is meant by a Subject than what is meant by a Predicate. The Category of Substance, as laid out by Aristotle, neither exists by itself, nor can be conceived by itself, without that of Relation and the generic notion of Predicate.[b] All three lie together

[a] Categor. p. 2, a. 14, b. 4; p. 3, b. 12.

[b] Aristotle gives an explanation of what he means by *καθ' αὑτό—καθ' αὑτά*, in the Analytic. Post. I. iv. p. 73, a. 34, b. 13. According to that explanation it will be necessary to include in *τὸ καθ' αὑτὸ* of the Category *Οὐσία*, all that is necessary to make the definition or explanation of that Category understood.

M. Barthélemy St. Hilaire, in the valuable Preface introducing his translation of the Organon, gives what I think a just view of the Categories generally, and especially of *πρώτη οὐσία*, as simply naming (*i. e.* giving a proper name), and doing nothing more. I transcribe the passage, merely noting that the terms *anterior* and *posterior* can mean nothing more than *logical* anteriority and posteriority.

"Mais comment classer les mots? —C'est à la réalité seule qu'il faut le demander; à la réalité dont le langage n'est que le réflet, dont les mots ne sont que le symbole. Que nous présente la réalité? Des individus, rien que des individus, existant par eux-mêmes, et se groupant, par leurs ressemblances et leurs différences, sous des espèces et sous des genres. Ainsi donc, en étudiant l'individu, l'être individuel, et en analysant avec exactitude tout ce qu'il est possible d'en dire en tant qu'être, on aura les classes les plus générales des mots; les catégories, ou pour prendre le terme français, les attributions, qu'il est possible de lui appliquer. Voilà tout le fondement des Catégories.—Ce n'est pas du reste, une classification des choses à la manière de celles de l'histoire naturelle, qu'il s'agit de faire en logique: c'est une simple énumération de tous les points de vue, d'où l'esprit peut considérer les choses, non pas, il est vrai, par rapport à l'esprit lui-même, mais par rapport à leur réalité et à leurs appellations. —Aristote distingue ici dix points de vue, dix significations principales des mots.—La Catégorie de la Substance est à la tête de toutes les autres, précisément parceque la prémière, la plus essentielle, marque d'un être, c'est d'être. Cela revient à dire qu'avant tout, l'être est, l'être existe. Par suite les mots qui expriment la substance sont antérieurs à tous les autres, et sont les plus importants.

at the bottom of the analytical process, as the last findings and residuum.

Aristotle, taking his departure from an analysis of the complete sentence or of the act of predication, appears to have regarded the Subject as having a natural priority over the Predicate. The noun-substantive (which to him represents the Subject), even when pronounced alone, carries to the hearer a more complete conception than either the adjective or the verb when pronounced alone; these make themselves felt much more as elliptical and needing complementary adjuncts. But this is only true in so far as the conception, raised by the substantive named alone (*ἄνευ συμπλοκῆς*), includes by anticipation what would be included, if we added to it some or all of its predicates. If we could deduct from this conception the meaning of all the applicable predicates, it would seem essentially barren or incomplete, awaiting something to come; a mere point of commencement or departure,* known only by the various lines which may be drawn

Il faut ajouter que ces mots là participeront en quelque sorte à cet isolement que les individus nous offrent dans la nature. Mais de même que, dans la réalité, les individus subsistant par eux seuls forment des espèces et des genres, qui ont bien aussi une existence substantielle, la substance se divisera de même en substance première et substance seconde.—Les espèces et les genres, s'ils expriment la substance, ne l'expriment pas dans toute sa pureté; c'est déja de la substance qualifié, comme le dit Aristote. —Il n'y a bien dans la réalité que des individus et des espèces ou genres. Mais ces individus en soi et pour soi n'existent pas seulement; ils existent sous certaines conditions; leur existence se produit sous certaines modifications, que les mots expriment aussi, tout comme ils expriment l'existence absolue. Ces nouvelles classes de mots formeront les autres Catégories.—Ces modifications, ces accidents, de l'individu sont au nombre de neuf: Aristote n'en reconnaît pas davantage.—Voila dont les dix Catégories: les dix seules attributions possibles. *Par la première, on nomme les individus, sans faire plus que les nommer: par les autres, on les qualifie.* On dit d'abord ce qu'est l'individu, et ensuite quel il est." Barthélemy St. Hilaire, Logique d'Aristote, Preface, pp. lxxii.-lxxvii.

* Plato would not admit the point as anything more than *ἀρχὴν γραμμῆς* (Aristot. Metaphys. A. p. 992, a. 21).

from it; a *substratum* for various attributes to lie upon or to inhere in. That which is known only as a *substratum*, is known only relatively to a superstructure to come; the one is *Relatum*, the other *Correlatum*, and the mention of either involves an implied assumption of the other. There may be a logical priority, founded upon expository convenience, belonging to the *substratum*, because it remains numerically one and the same, while the superstructure is variable. But the priority is nothing more than logical and notional; it does not amount to an ability of prior independent existence. On the contrary, there is simultaneity *by nature* (according to Aristotle's own definition of the phrase) between Subject, Relation, and Predicate; since they all imply each other as reciprocating correlates, while no one of them is the cause of the others.*

When Aristotle says, very truly, that if the First Substances were non-existent, none of the other Predicaments could exist, we must understand what he means by the term *first*. That term bears, in this treatise, a sense different from what it bears elsewhere: here it means the extreme concrete and individual; elsewhere it means the extreme abstract and universal. The First Substance or First Essence, in the Categories, is a *Hoc Aliquid* (τόδε τι), illustrated by the examples *hic homo, hic equus*. Now, as thus explained and illustrated, it includes not merely the Second Substance, but various accidental attributes besides. When we talk of This man, Sokrates, Kallias, &c., the hearer conceives not only the attributes for which he is called a man, but also various accidental attributes, ranking under one or more of the other Pre-

* Aristot. Categor. p. 14, b. 27: φύσει δὲ ἅμα, ὅσα ἀντιστρέφει κατὰ τὴν τοῦ εἶναι ἀκολούθησιν, μηδαμῶς δὲ αἴτιον θάτερον θατέρῳ τοῦ εἶναί ἐστιν, οἷον ἐπὶ τοῦ διπλασίου καὶ τοῦ ἡμίσεος· &c.

dicaments. The First Substance thus (as explained by Aristotle) is not conceived as a mere *substratum* without Second Substance and without any Accidents, but as already including both of them, though as yet indeterminately; it waits for specializing words, to determine what its Substance or Essence is, and what its accompanying Accidents are. Being an individual (*Unum numero*), it unites in itself both the essential attributes of its species, and the unessential attributes peculiar to itself.[a] It is already understood as including attributes of both kinds; but we wait for predicates to declare (*δηλοῦν—ἀποδιδόναι*[b]) what these attributes are. The First or Complete *Ens* embodies in itself all the Predicaments, though as yet potential and indeterminate, until the predicating adjuncts are specified. There is no priority, in the order of existence, belonging to Substance over Relation or Quality; take away either one of the three, and the First *Ens* disappears. But in regard to the order of exposition, there is a natural priority, founded on convenience and facility of understanding. The *Hoc Aliquid* or *Unum Numero*, which intimates in general outline a certain concretion or coexistence of attributes, though we do not yet know what they are—being as it were a skeleton—comes naturally as Subject before the predicates, whose function is declaratory and specifying as to those attributes: moreover, the essential attributes, which are declared and connoted when we first bestow a specific name on

[a] Aristot. Metaphys. Z. p. 1033, b. 24; p. 1034, a. 8. *Τὸ δ' ἅπαν τόδε Καλλίας ἢ Σωκράτης ἐστὶν ὥσπερ ἡ σφαῖρα ἡ χαλκῆ ἠδί, ὁ δ' ἄνθρωπος καὶ τὸ ζῷον ὥσπερ σφαῖρα χαλκῆ ὅλως.—τὸ δ' ἅπαν ἤδη τὸ τοιόνδε εἶδος ἐν ταῖσδε ταῖς σαρξὶ καὶ ὀστοῖς Καλλίας καὶ Σωκράτης· καὶ ἕτερον μὲν διὰ τὴν ὕλην, ἕτερα γάρ, ταὐτὸ δὲ τῷ εἴδει· ἄτομον γὰρ τὸ εἶδος.*

[b] Categor. p. 2, b. 29, seq. *εἰκότως δὲ μετὰ τὰς πρώτας οὐσίας μόνα τῶν ἄλλων τὰ εἴδη καὶ τὰ γένη δεύτεραι οὐσίαι λέγονται· μόνα γὰρ δηλοῖ τὴν πρώτην οὐσίαν τῶν κατηγορουμένων.* &c.

the subject, come naturally before the unessential attributes, which are predicated of the subject already called by a specific name connoting other attributes.[a] The essential characters are native and at home; the accidental attributes are domiciliated foreigners.[b]

It is thus that Aristotle has dealt with Ontology, in one of the four distinct aspects thereof, which he distinguishes from each other; that is, in the distribution of *Entia* according to their logical order, and reciprocal interdependence, in predication. *Ens* is a multivocal word, neither strictly univocal nor altogether equivocal. It denotes (as has been stated above) not a generic aggregate, divisible into species, but an analogical aggregate, starting from one common terminus and ramifying into many derivatives, having no other community except that of relationship to the same terminus.[c] The different modes of *Ens* are distinguished by the degree or variety of such relationship. The *Ens Primum, Proprium, Completum*, is (in Aristotle's view) the concrete individual; with a defined essence or essential constituent attributes (*τί ἦν εἶναι*), and with unessential accessories or accidents also—all embodied and implicated in the One *Hoc Aliquid*. In the Categoriæ Aristotle analyses this *Ens Completum* (not metaphysically, into Form and Matter, as we shall find him doing elsewhere, but) logically into Subject and Predicates. In this logical analysis, the Subject which can

[a] Analyt. Poster. i. p. 73, b. 6: *οἷον τὸ βαδίζον ἕτερόν τι ὂν βαδίζον ἐστὶ καὶ λευκόν, ἡ δ' οὐσία, καὶ ὅσα τόδε τι σημαίνει, οὐχ ἕτερόν τι ὄντα ἐστὶν ὅπερ ἐστίν.* Also p. 83, a. 31. *καὶ μὴ εἶναί τι λευκόν, ὃ οὐχ ἕτερόν τι ὂν λευκόν ἐστιν*: also p. 83, b. 22.

[b] Categor. p. 2, b. 31: *τὸν γάρ τινα ἄνθρωπον ἐὰν ἀποδιδῷ τις τί ἐστι, τὸ μὲν εἶδος ἢ τὸ γένος ἀποδιδοὺς οἰκείως ἀποδώσει—τῶν δ' ἄλλων ὅ τι ἂν ἀποδιδῷ τις, ἀλλοτρίως ἔσται ἀποδεδωκώς*, &c.

[c] Aristot. Metaphys. Δ. p. 1017, a. 22. *καθ' αὑτὰ δὲ εἶναι λέγεται ὅσαπερ σημαίνει τὰ σχήματα τῆς κατηγορίας· ὁσαχῶς γὰρ λέγεται, τοσαυταχῶς τὸ εἶναι σημαίνει.*

never be a Predicate stands first; next, come the near kinsmen, Genus and Species (expressed by substantive names, as the First Substance is), which are sometimes Predicates — as applied to *Substantia Prima*, sometimes Subjects — in regard to the extrinsic accompaniments or accidents;[a] in the third rank, come the more remote kinsmen, Predicates pure and simple. These are the logical factors or constituents into which the *Ens Completum* may be analysed, and which together make it up as a logical sum-total. But no one of these logical constituents has an absolute or independent *locus standi*, apart from the others. Each is relative to the others; the Subject to its Predicates, not less than the Predicates to their Subject. It is a mistake to describe the Subject as having a real standing separately and alone, and the Predicates as something afterwards tacked on to it. The Subject *per se* is nothing but a general potentiality or receptivity for Predicates to come; a relative general conception, in which the two, Predicate and Subject, are jointly implicated as *Relatum* and *Correlatum*.[b]

[a] Categor. p. 3, a. 1: *ὅτε δέ γε αἱ πρῶται οὐσίαι πρὸς τὰ ἄλλα πάντα ἔχουσιν, οὕτω τὰ εἴδη καὶ τὰ γένη πρὸς τὰ λοιπὰ πάντα ἔχει· κατὰ τούτων γὰρ πάντα τὰ λοιπὰ κατηγορεῖται.*

[b] Bonitz has an instructive note upon Form and Matter, the *metaphysical* constituents of *Prima Substantia*, *Hoc Aliquid*, Sokrates, Kallias (see Aristot. Metaphys. Z. p. 1033, b. 24), which illustrates pertinently the relation between Predicate and Subject, the *logical* constituents of the same *σύνολον*. He observes (not. p. 327, ad Aristot. Metaph. Z. p. 1033, b. 19), "Quoniam ex duabus substantiis, quæ quidem actu sint, nunquam una existit substantia, si et formam et materiam utrumque per se esse poneremus, nunquam ex utroque existeret res definita ac sensibilis, *τόδε τι*. Ponendum potius, si recte assequor Aristotelis sententiam, utrumque (Form and Matter) ita ut alterum exspectet, materia ut formæ definitionem, forma ut materiam definiendam, exspectet, neutra vero per se et absolute sit." What Bonitz says here about Matter and Form is no less true about Subject and Predicate: each is relative to the other—neither of them is absolute or independent of the other. In fact, the explanation given by Aristotle of *Materia* (Metaph. Z. p. 1028, b. 36) coincides very much with the *Prima Essentia* of the Categories, if abstracted from the *Secunda*

The logical aspect of Ontology, analysing *Ens* into a common Subject with its various classes of Predicates, appears to begin with Aristotle. He was, as far as we can see, original, in taking as the point of departure for his theory, the individual man, horse, or other perceivable object; in laying down this Concrete Particular with all its outfit of details, as the type of *Ens* proper, complete and primary; and in arranging into classes the various secondary modes of *Ens*, according to their different relations to the primary type and the mode in which they contributed to make up its completeness. He thus stood opposed to the Pythagoreans and Platonists, who took their departure from the Universal, as the type of full and true Entity;* while he also dissented from Demokritus, who recognized no true *Ens* except the underlying, imperceptible, eternal atoms and vacuum. Moreover Aristotle seems to have been the first to draw up a logical analysis of Entity in its widest sense, as distinguished from

Essentia. *Materia* is called there by Aristotle *τὸ ὑποκείμενον, καθ' οὗ τὰ ἄλλα λέγεται, ἐκεῖνο δ' αὐτὸ μηκέτι κατ' ἄλλο—λέγω δ' ὕλην ἡ καθ' αὑτὴν μήτε τι μήτε ποσὸν μήτε ἄλλο μηθὲν λέγεται οἷς ὥρισται τὸ ὄν* (p. 1029, a. 20). *ἔστι γάρ τι καθ' οὗ κατηγορεῖται τούτων ἕκαστον, ᾧ τὸ εἶναι ἕτερον καὶ τῶν κατηγοριῶν ἑκάστῃ· τὰ μὲν γὰρ ἄλλα τῆς οὐσίας κατηγορεῖται, αὕτη δὲ τῆς ὕλης.*

Aristotle proceeds to say that this Subject—the Subject for all Predicates, but never itself a Predicate—cannot be the genuine *οὐσία*, which must essentially be *χωριστὸν καὶ τὸ τόδε τι* (p. 1029, a. 28), and which must have a *τί ἦν εἶναι* (1029, b. 2). The Subject is in fact not true *οὐσία*, but is one of the constituent elements thereof, being relative to the Predicates as *Correlata*: it is the potentiality for Predicates generally, as *Materia* is the potentiality for Forms.

* Simplikius ad Categ. p. 2, b. 5; Schol. p. 52, a. 1, Br: *Ἀρχύτας ὁ Πυθαγορείος οὐ προσίεται τὴν νυνὶ προκειμένην τῶν οὐσιῶν διαίρεσιν, ἀλλ' ἄλλην ἀντὶ ταύτης ἐκεῖνος ἐγκρίνει—τῶν μέντοι Πυθαγορείων οὐδεὶς ἂν πρόσοιτο ταύτην τὴν διαίρεσιν τῶν πρώτων καὶ δευτέρων οὐσιῶν, ὅτι τοῖς καθόλου τὸ πρώτως ὑπάρχειν μαρτυροῦσι, τὸ δὲ ἔσχατον ἐν τοῖς μεριστοῖς ἀπολείπουσι, καὶ διότι ἐν τοῖς ἁπλουστάτοις τὴν πρώτην καὶ κυριωτάτην οὐσίαν ἀποτίθενται, ἀλλ' οὐχ ὡς νῦν λέγεται ἐν τοῖς συνθέτοις καὶ αἰσθητοῖς, καὶ διότι τὰ γένη καὶ τὰ εἴδη ὄντα νομίζουσιν, ἀλλ' οὐχὶ συγκεφαλαιούμενα ταῖς χωριστῇσ ἐπινοίαις.*

that metaphysical analysis which we read in his other works; the two not being contradictory, but distinct and tending to different purposes. Both in the one and in the other, his principal controversy seems to have been with the Platonists, who disregarded both individual objects and accidental attributes; dwelling upon Universals, Genera and Species, as the only real *Entia* capable of being known. With the Sophists, Aristotle contends on a different ground, accusing them of neglecting altogether the essential attributes, and confining themselves to the region of accidents, in which no certainty was to be found;[a] in Plato, he points out the opposite mistake, of confining himself to the essentials, and ascribing undue importance to the process of generic and specific subdivision.[b] His own logical analysis takes account both of the essential and accidental, and puts them in what he thinks their proper relation. The Accidental (*συμβεβηκός*, concomitant, *i.e.* of the essence) is *per se* not knowable at all (he contends), nor is ever the object of study pursued in any science; it is little better than a name, designating the lowest degree of *Ens*, bordering on *Non-Ens*.[c] It is a term comprehending all that he includes under his nine last Categories; yet it is not a term connoting either generic communion, or even so much as analogical relation.[d] In the treatise now before us, he does not recognize either that or any other general term as common to all those nine Categories; each of the nine is here treated as a *Summum Genus*,

[a] Metaphys. E. p. 1026, b. 15: *εἰσὶ γὰρ οἱ τῶν σοφιστῶν λόγοι περὶ τὸ συμβεβηκὸς ὡς εἰπεῖν μάλιστα πάντων*, &c.; also K. p. 1061, b. 8; Analytic. Poster. i. p. 71, b. 10.

[b] Analytic. Priora, i. p. 46, a. 31.

[c] Aristot. Metaph. E. p. 1026, b. 13-21. *ὥσπερ γὰρ ὀνόματι μόνον τὸ συμβεβηκός — φαίνεται γὰρ τὸ συμβεβηκὸς ἐγγύς τι τοῦ μὴ ὄντος.*

[d] Physica, iii. 1, p. 200, b. 34. *κοινὸν δ' ἐπὶ τούτων οὐδέν ἐστι λαβεῖν*, &c.

having its own mode of relationship, and clinging by its own separate thread to the Subject. He acknowledges the Accidents in his classification, not as a class by themselves, but as subordinated to the Essence, and, as so many threads of distinct, variable, and irregular accompaniments attaching themselves to this constant root, without uniformity or steadiness.[a]

In discriminating and arranging the Ten Categories, Trendelenburg supposes that Aristotle was guided, consciously or unconsciously, by grammatical considerations, or by a distinction among the parts of speech. It should be remembered that what are now familiarly known as the eight parts of speech, had not yet been distinguished or named in the time of Aristotle, nor did the distinction come into vogue before the time of the Stoic and Alexandrine grammarians, more than a century after him. *Essentia* or *Substantia*, the first Category, answers (so Trendelenburg thinks[b]) to the Substantive; *Quantum* and *Quale* represent the Adjective; *Ad Aliquid*, the comparative Adjective, of which *Quantum* and *Quale* are the positive degree; *Ubi* and *Quando* the Adverb; *Jacere*, *Habere*, *Agere*, *Pati* the Verb. Of the last four, *Agere* and *Pati* correspond to the active and passive voices of the Verb;

[a] See the explanation given of τὸ ὂν κατὰ συμβεβηκὸς in Metaphys. E. pp. 1026 b., 1027 a. This is the sense in which Aristotle most frequently and usually talks of συμβεβηκός, though he sometimes uses it to include also a constant and inseparable accompaniment or Accident, if it be not included in the Essence (*i. e.* not connoted by the specific name); thus, to have the three angles equal to two right angles is a συμβεβηκὸς of the triangle, Metaph. Δ. p. 1025, a. 30. The proper sense in which he understands τὸ συμβεβηκὸς is as opposed to τὸ ἀεὶ ἐξ ἀνάγκης, as well as to τὸ ὡς ἐπὶ τὸ πολύ. See Metaphys. K. p. 1065, a. 2; Analyt. Poster. i. p. 74, b. 12, p. 75, a. 18.

It is that which is by its nature irregular and unpredictable. See the valuable chapter (ii.) in Brentano, Von der Bedeutung des Seienden nach Aristoteles (pp. 8-21), in which the meaning of τὸ συμβεβηκὸς in Aristotle is clearly set forth.

[b] Trendelenburg, Kategorienlehre, pp. 23, 211.

Jacere to the neuter or intransitive Verb; and *Habere* to the peculiar meaning of the Greek perfect—the present result of a past action.

This general view, which Trendelenburg himself conceives as having been only guiding and not decisive or peremptory in the mind of Aristotle,[a] appears to me likely and plausible, though Bonitz and others have strongly opposed it. We see from Aristotle's own language, that the grammatical point of view had great effect upon his mind; that the form (*e.g.*) of a substantive implied in his view a mode of signification belonging to itself, which was to be taken into account in arranging and explaining the Categories.[b] I apprehend that Aristotle was induced to distinguish and set out his Categories by analysing various complete sentences, which would of course include substantives, adjectives, verbs, and adverbs. It is also remarkable that Aristotle should have designated his four last Categories by the indication of verbs, the two immediately preceding by adverbs, the second and third by adjectives, and the first by a substantive. There remains the important Category *Ad Aliquid*, which has no part of speech corresponding to it specially. Even this Category, though not represented by any part of speech, is nevertheless conceived and defined by Aristotle in a very narrow way, with close reference to the form of expression, and to the requirement of a noun immediately following, in the genitive or dative case. And thus, where there is no special part of

[a] Trendelenburg, Kategorienlehre, p. 209: "Gesichtspunkte der Sprache leiteten den erfindenden Geist, um sie (die Kategorien) zu bestimmen. Aber die grammatischen Beziehungen leiten nur und entscheiden nicht." P. 216: "der grammatische Leitfaden der Satzzergliederung wird anerkannt."

[b] Categor. p. 3, b. 13: *ἐπὶ δὲ τῶν δευτέρων οὐσιῶν φαίνεται μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ ἄνθρωπον ἢ ζῷον, οὐ μὴν ἀληθές γε, ἀλλὰ μᾶλλον ποιόν τι σημαίνει.* &c.

speech, the mind of Aristotle still seems to receive its guidance from grammatical and syntactic forms.

We may illustrate the ten Categories of Aristotle by comparing them with the four Categories of the Stoics. During the century succeeding Aristotle's death, the Stoics, Zeno and Chrysippus (principally the latter), having before them what he had done, proposed a new arrangement for the complete distribution of Subject and Predicates. Their distribution was quadruple instead of decuple. Their first Category was *τί*, *Aliquid* or *Quiddam*—*τὸ ὑποκείμενον*, the *Substratum* or Subject. Their second was *ποιόν*, *Quale* or Quality. Their third was *πὼς ἔχον*, *certo Modo se habens*. Their fourth was, *πρός τι πὼς ἔχον*, *Ad Aliquid certo Modo se habens*.*

We do not possess the advantage (which we have in the case of Aristotle) of knowing this quadruple scheme as stated and enforced by its authors. We know it only through the abridgment of Diogenes Laertius, together with incidental remarks and criticisms, chiefly adverse, by Plutarch, Sextus Empiricus, Plotinus, and some Aristotelian commentators. As far as we can make out upon this evidence, it appears that the first Stoic Category corresponded with the Πρώτη Οὐσία, First

* Plotinus, Ennead. vi. 1, 25; vi. 1, 30: *τὰ πὼς ἔχοντα τρίτα τίθεσθαι.* Simplikius ad Categor. f. 7, p. 48, a. 13, Brand. Schol.: *Οἱ Στωϊκοὶ εἰς ἐλάττονα συστέλλειν ἀξιοῦσι τὸν τῶν πρώτων γενῶν ἀριθμόν, καί τινα ἐν τοῖς ἐλάττοσιν ὑπηλλαγμένα παραλαμβάνουσι. ποιοῦνται γὰρ τὴν τομὴν εἰς τέσσαρα, εἰς ὑποκείμενα, καὶ ποιά, καὶ πὼς ἔχοντα, καὶ πρός τι πὼς ἔχοντα.*

It would seem from the adverse criticisms of Plotinus, that the Stoics recognized one grand *γένος* comprehending all the above four as distinct species: see Plotinus, Ennead., vi. 2, 1; vi. 1, 25. He charges them with inconsistency and error for doing so. He admits, however, that Aristotle did not recognize any one supreme *γένος* comprehending all the ten Categories (vi. 1, 1), but treated all the ten as *πρῶτα γένη*, under an analogous aggregate. I cannot but think that the Stoics looked upon their four *γένη* in the same manner; for I do not see what they could find more comprehensive to rank generically above *τί*.

Essence or Substance of Aristotle. It was exclusively Subject, and could never become Predicate; but it was indispensable as Subject, to the three other Predicates. Its meaning was concrete and particular; for we are told that all general notions or conceptions were excluded by the Stoics from this Category,[a] and were designated as Οὔτινα, Non-Individuals, or Non-Particulars. *Homo* was counted by them, not under the Category τί, *Quid*, but under the Category ποιόν, *Quale*; in its character of predicate determining the Subject τίς or τί. The Stoic Category *Quale* thus included the Aristotelian Second Essences or Substances, and also the Aristotelian *differentia*. *Quale* was a *species*-making Category (εἰδοποιός).[b] It declared what

[a] Simpl. ad Categ., p. 54, a. 12, Schol. Brand.: *συμπαραληπτέον δὲ καὶ τὴν συνήθειαν τῶν Στωϊκῶν περὶ τῶν γενικῶν ποιῶν, πῶς αἱ πτώσεις κατ' αὐτοὺς προφέρονται, καὶ πῶς οὔτινα τὰ κοινὰ παρ' αὐτοῖς λέγεται, καὶ ὅπως παρὰ τὴν ἄγνοιαν τοῦ μὴ πᾶσαν οὐσίαν τόδε τι σημαίνειν καὶ τὸ παρὰ τὸν οὔτινα σόφισμα γίνεται παρὰ τὸ σχῆμα τῆς λέξεως· οἷον εἴ τίς ἐστιν ἐν Ἀθήναις, οὐκ ἔστιν ἐν Μεγάροις· ὁ γὰρ ἄνθρωπος οὔτις ἐστίν, οὐ γάρ ἐστί τις ὁ κοινός, ὡς τινὰ δὲ αὐτὸν εἰλάβομεν ἐν τῷ λόγῳ, καὶ παρὰ τοῦτο τὸ ὄνομα τοῦτο ἔσχεν ὁ λόγος οὔτις κληθείς.*

Compare Schol. p. 45, a. 7, where Porphyry says that the Stoics, as well as Aristotle, in arranging Categories, took as their point of departure *τὸ δεύτερον ὑποκείμενον*, not *τὸ πρῶτον ὑποκείμενον* (= *τὴν ἄποιον ὕλην*).

[b] Trendelenburg, Kategorienlehre p. 222; Plutarch, De Stoicor. Repugnantiis, p. 1054 a.; Simpl. ad Categor. Schol. p. 67, Br. Ποιὰ were distributed by the Stoics into three varieties; and the abstract word Ποιότης, in the Stoic sense, corresponded only to the highest and most complete of these three varieties, not to the second or third variety, so that ποιότης had a narrower extension than ποιόν: there were ποιὰ without any ποιοτὴς corresponding to them. To the third Category, Πῶς ἔχοντα, which was larger and more varied than the second, they had no abstract term corresponding; nor to the fourth Category, Πρός τι. Hence, we may see one reason why the Stoics, confining the abstract term ποιότητες to durable attributes, were disposed to maintain that the ποιότητες τῶν σωμάτων were themselves σώματα or σωματικά: which Galen takes much pains to refute (vol. xix. p. 463, seq. ed. Kühn). The Stoics considered these qualities as ἀέρας τινάς, or πνεύματα, &c., spiritual or gaseous agents pervading and holding together the solid substance.

It is difficult to make out these Stoic theories clearly from the evidence before us. From the statements of Simplikius in Scholia, pp.

was the Essence of the Subject *τί*—the essential qualities or attributes, but also the derivative manifestations thereof, coinciding with what is called the *proprium* in Porphyry's Eisagoge. It therefore came next in order immediately after *τί*: since the Essence of the Subject must be declared, before you proceed to declare its Accidents.

The third Stoic Category (*πῶς ἔχον*) comprised a portion of what Aristotle ranked under *Quale*, and all that he ranked under *Quantum*, *Ubi*, *Quando*, *Agere*, *Pati*, *Jacere*, *Habere*. The fourth Stoic Category coincided with the Aristotelian *Ad Aliquid*. The third was thus intended to cover what were understood as absolute or non-relative Accidents; the fourth included what were understood as Relative Accidents.

The order of arrangement among the four was considered as fixed and peremptory. They were not coordinate species under one and the same genus, but superordinate and subordinate,[a] the second presupposing and attaching to the first; the third, presupposing and attaching to the first, *plus* the second; the fourth, pre-

67-69, I cannot understand the line of distinction between *ποιὰ* and *πῶς ἔχοντα*. The Stoics considered *ποιότης* to be *δύναμις πλείστων ἐποιστικὴ συμπτωμάτων, ὡς ἡ φρόνησις τοῦ τε φρονίμως περιπατεῖν καὶ τοῦ φρονίμως διαλέγεσθαι* (p. 69, b. 2); and if all these *συμπτώματα* were included under *ποιόν*, so that *ὁ φρονίμως περιπατῶν, ὁ πὺξ προτείνων*, and *ὁ τρέχων*, were *ποιοί τινες* (p. 67, b. 34), I hardly see what was left for the third Category *πῶς ἔχοντα* to comprehend; although, according to the indications of Plotinus, it would be the most comprehensive. The Stoic writers seem both to have differed among themselves and to have written inconsistently.

Neither Trendelenburg (Kategorienlehre pp. 223-226), nor even Prantl, in his more elaborate account (Gesch. der Logik, pp. 429-437), clears up this obscurity.

[a] Prantl, Geschichte der Logik, vol. i. pp. 428-429; Simplikius ad Categor. fol. 43, A: *κἀκεῖνο ἄτοπον τὸ σύνθετα ποιεῖν τὰ γένη ἐκ προτέρων τινῶν καὶ δευτέρων ὡς τὸ πρός τι ἐκ ποιοῦ καὶ πρός τι.* Cf. Plotinus, Enead. vi. 1, 25-29.

Porphyry appears to include all *συμβεβηκότα* under *ποιὸν* and *πῶς ἔχον*: he gives as examples of the latter, what Aristotle would have assigned to the Category *κεῖσθαι* (Eisagoge, cc. 2, 10; Schol. Br. p. 1, b. 32, p. 5, a. 30).

supposing and attaching to the first, *plus* the second and third. The first proposition to be made is, in answer to the question *Quale Quid?* You answer *Tale Aliquid*, declaring the essential attributes. Upon this, the next question is put, *Quali Modo se habens?* You answer by a term of the third Category, declaring one or more of the accidental attributes non-relative, *Tale Aliquid, tali Modo se habens.* Upon this, the fourth and last question follows, *Quali Modo se habens ad alia?* Answer is made by a predicate of the fourth Category, *i.e.* a Relative. *Hic Aliquis—homo* (1), *niger* (2), *servus* (3).

In comparing the ten Aristotelian with the four Stoic Categories, we see that the first great difference is in the extent and comprehension of *Quale*, which Aristotle restricts on one side (by distinguishing from it *Essentia Secunda*), and enlarges on the other (by including in it many attributes accidental and foreign to the Essence). The second difference is, that the Stoics did not subdivide their third Category, but included therein all the matter of six Aristotelian Categories,[a] and much of the matter of the Aristotelian *Quale.* Both schemes agree on two points:—1. In taking as the point of departure the concrete, particular, individual, Substance. 2. In the narrow, restricted, inadequate conception formed of the Relative—*Ad Aliquid.*

Plotinus himself recognizes five *Summa* or *Prima Genera*,[b] (he does not call them Categories) *Ens, Motus, Quies, Idem, Diversum*; the same as those enumerated

[a] Plotinus (Ennead. vi. 1. 30) disapproves greatly the number of disparates ranked under τὸ πῶς ἔχον, which has (he contends) no discoverable unity as a generic term. It is curious to see how he cites the Aristotelian Categories, as if the decuple distinction which they marked out were indefeasible.

Simplikius says that the Stoics distinguished between τὸ πρός τι and τὸ πρός τι πῶς ἔχον; and Trendelenburg (pp. 228, 229) explains and illustrates this distinction, which, however, appears to be very obscure.

[b] Plotinus, Ennead. vi. 2. 8, 14, 16.

in the Platonic Sophistes. He does not admit *Quantum*, *Quale*, or *Ad Aliquid*, to be *Prima Genera*; still less the other Aristotelian Categories. Moreover, he insists emphatically on the distinction between the intelligible and the sensible world, which distinction he censures Aristotle for neglecting. His five *Genera* he applies directly and principally to the intelligible world. For the sensible world he admits ultimately five Categories; *Substantia* or *Essentia* (though he conceives this as fluctuating between Form, Matter, and the Compound of the two), *Ad Aliquid*, *Quantum*, *Quale*, *Motus*. But he doubts whether *Quantum*, *Quale*, and *Motus*, are not comprehended in *Ad Aliquid*.[a] He considers, moreover, that Sensible Substance is not Substance, properly speaking, but only an imitation thereof; a congeries of non-substantial elements, qualities and matter.[b] Dexippus,[c] in answering the objections of Plotinus, insists much on the difference

[a] Plotinus, Ennead. vi. 3. 3. ἢ καὶ ταῦτα εἰς τὰ πρός τι· περιεκτικὸν γὰρ μᾶλλον. His idea of Relation is more comprehensive than that of Aristotle, for he declares that terms, propositions, discourse, &c., are πρός τι· καθ' ὃ σημαντικά (vi. 3. 19).

[b] Plotinus, Enn. vi. 3. 8-15.

[c] The second and third books of Dexippus's Dialogue contain his answers to many of the objections urged by Plotinus. Aristotle, in the Categoriæ (Dexippus says), accommodates himself both to the received manner of speaking and to the simple or ordinary conception of οὐσία entertained by youth or unphilosophical men—οὔτε γὰρ περὶ τῶν ὄντων, οὔτε περὶ τῶν γενῶν τῆς πρώτης οὐσίας νῦν αὐτῷ πρόκειται λέγειν· στοχάζεται γὰρ τῶν νέων τοῖς ἁπλουστέροις ἑπακολουθεῖν δυναμένων (p. 49). Compare also pp. 50-54, where Dexippus contrasts the more abstruse handling which we read in the Physica and Metaphysica, with the more obvious and unpretending thoughts worked out by Aristotle in the Categoriæ. Dexippus gives an interesting piece of advice to his pupil, that he should vary his mode of discussing these topics, according as his companions are philosophical or otherwise—ἐγὼ μὲν οὖν, ὦ καλὲ κἀγαθὲ Σέλευκε, δογματικώτερον πρὸς Πλωτῖνον ἀπαντῶ, σὺ δέ, ἐπεὶ βαθύτεραί πως εἰσὶν αἱ λύσεις αὗται, πρὸς μὲν τοὺς ἐκ φιλοσοφίας ὁρμωμένους ταῖς τοιαύταις ἀπαντήσεσι χρῶ, πρὸς δὲ τοὺς ὀλίγα ἐπισταμένους τῶν δογμάτων ταῖς προχείροις χρῶ διαλύσεσιν, ἐκεῖνο λέγων, ὅτι περὶ πόδα ποιεῖσθαι ἔθος τὰς ἀκροάσεις Ἀριστοτέλει· διὸ καὶ νῦν οὐδὲν ἔξωθεν ἐπεισάγει τῶν ἀνωτέρω κειμένων φιλοσοφημάτων, &c. (pp. 50-51).

between Aristotle's point of view in the Categoriæ, in the Physica, and in the Metaphysica. In the Categoriæ, Aristotle dwells mainly on sensible substances (such as the vulgar understand) and the modes of naming and describing them.

Galen also recognizes five Categories; but not the same five as Plotinus. He makes a new list, formed partly out of the Aristotelian ten, partly out of the Stoic four:—Οὐσία, ποσόν, ποιόν, πρός τι, πρός τι πῶς ἔχον.[a]

The latter portion of this Aristotelian treatise, on the Categories or Predicaments, consists of an Appendix, usually known under the title of 'Post-Predicamenta;'[b] wherein the following terms or notions are analysed and explained—*Opposita*, *Prius*, *Simul*, *Motus*, *Habere*.

Of *Opposita*, Aristotle reckons four modes, analogous to each other, yet not different species under the same genus:[c]—1. *Relative-Opposita*—*Relatum* and *Correlatum*. 2. *Contraria*. 3. *Habitus* and *Privatio*. 4. *Affirmatio* and *Negatio*.

These four modes of opposition have passed from

[a] Schol. ad Categor. p. 49 a. 30.

[b] Andronikus and other commentators supposed the Post-Predicamenta to have been appended to the Categoriæ by some later hand. Most of the commentators dissented from this view. The distinctions and explanations seem all Aristotelian.

[c] Categ. p. 11, b. 16: περὶ δὲ τῶν ἀντικειμένων, ποσαχῶς εἴωθεν ἀντικεῖσθαι ῥητέον. See Simpl. in Schol. p. 81, a. 37-b. 24. Whether Aristotle reckoned τὰ ἀντικείμενα a true genus or not, was debated among the commentators. The word ποσαχῶς implies that he did not; and he treats even the term ἐναντία as a πολλαχῶς λεγόμενον, though it is less wide in its application than ἀντικείμενα, which includes *Relata* (Metaphys. I. p. 1055, a. 17). He even treats στέρησις as a πολλαχῶς λεγόμενον (p. 1055, a. 34).

Αἱ ἀντιθέσεις τέσσαρες, the four distinct varieties of τὰ ἀντικείμενα are enumerated by Aristotle in various other places:—Topic. ii. p. 109, b. 17; p. 113, b. 15; Metaphys. I. p. 1055, a. 38. In Metaphys. Δ. p. 1018, a. 20, two other varieties are added. Bonitz observes (ad Metaph. p. 247) that Aristotle seems to treat this quadripartite distribution of *Opposita*, "tanquam certum et exploratum, pariter ac causarum numerum," &c.

the Categoriæ of Aristotle into all or most of the modern treatises on Logic. The three last of the four are usefully classed together, and illustrated by their contrasts with each other. But as to the first of the four, I cannot think that Aristotle has been happy in the place which he has assigned to it. To treat *Relativa* as a variety of *Opposita*, appears to me an inversion of the true order of classification; placing the more comprehensive term in subordination to the less comprehensive. Instead of saying that Relatives are a variety of the Opposite, we ought rather to say that Opposites are varieties of the Relative. We have here another proof of what has been remarked a few pages above; the narrow and inadequate conception which Aristotle formed of his *Ad Aliquid* or the Relative; restricting it to cases in which the describing phrase is grammatically elliptical.[a] The three classes last-mentioned

[a] Categor. p. 11, b. 24.

Ammonius and Simplikius inform us that there was much debate among the commentators about these four alleged varieties of *ἀντικείμενα*; also, that even Aristotle himself had composed a special treatise (not now extant), Περὶ τῶν Ἀντικειμένων, full of perplexing *ἀπορίαι*, which the Stoics afterwards discussed without solving (Schol. p. 83, a. 15-48). Herminus and others seem to have felt the difficulty of calling all Relatives *ἀντικείμενα*; for they admitted that the antithesis between the Relative and its Correlate was of gentler character, not conflicting, but reciprocally sustaining. Alexander ingeniously compared *Relatum* and its *Correlatum* to the opposite rafters of a roof, each supporting the other (*μαλακώτερα καὶ ἧττον μαχόμενα ἐν τοῖς ἀντικειμένοις, ὡς καὶ ἀμφιβάλλεσθαι εἰ εἰσὶν ἀντικείμενα σώζοντα ἄλληλα· ἀλλὰ τοῦτο μὲν δείκνυσιν Ἀλέξανδρος ὅτι ἀντικείμενα, ὃς καὶ τὰ λαβδοειδῆ ξύλα παραδεῖγμα λαμβάνει*, &c., Schol. p. 81, b. 32; p. 82, a. 15, b. 20). This is an undue enlargement of the meaning of *Opposita*, by taking in the literal material sense as an adjunct to the logical. On the contrary, the Stoics are alleged to have worked out the views of Aristotle about *ἐναντία*, but to have restricted the meaning of *ἀντικείμενα* to contradictory opposition, *i. e.* to Affirmative and Negative Propositions with the same subject and predicate (Schol. p. 83, b. 11; p. 87, a. 29). In Metaphysica, A. p. 983, a. 31, Aristotle calls the final cause (*τὸ οὗ ἕνεκα καὶ τἀγαθόν*) *τὴν ἀντικειμένην αἰτίαν* to the third cause (among his four), *τὸ ὅθεν ἡ κίνησις*. This is a misleading phrase; the two are not opposed, but mutually implicated and correlative.

by Aristotle (1. *Contraria*, 2. *Habitus* and *Privatio*, 3. *Affirmatio* and *Negatio*) are truly *Opposita*; in each there is a different mode of opposition, which it is good to distinguish from the others. But the *Relatum* and its *Correlatum*, as such, are not necessarily *Opposita* at all; they are compared or conceived in conjunction with each other; while a name, called relative, which connotes such comparison, &c., is bestowed upon each. *Opposita* fall under this general description, as parts (together with other parts not *Opposita*) of a larger whole. They ought properly to be called *Opposite-Relativa:* the phrase *Relative-Opposita*, as applied to Relatives generally, being discontinued as incorrect.[a]

From *Opposita* Aristotle passes to *Prius* and *Simul*; with the different modes of each.[b] *Successive* and *Synchronous*, are the two most general classes under which facts or events can be cast. They include between them all that is meant by Order in Time. They admit of no definition, and can be explained only by appeal to immediate consciousness in particular cases. Priority and Simultaneity, in this direct and primary sense, are among the clearest and most impressive notions of the human mind. But Aristotle recognizes four additional meanings of these same words, which he distinguishes from the primary, in the same way as he distinguishes (in the ten Categories) the different meanings of *Essentia*, in a gradually descending scale of analogy. The secondary *Prius* is that which does not reciprocate according to the order of existence with its *Posterius*; where the *Posterius* presupposes the

[a] See the just and comprehensive definition of Relative Names given by Mr. John Stuart Mill, in his System of Logic, Book I. chap. ii. § 7, p. 46. After reading that definition, the inconvenience of ranking Relatives as a species or variety of Opposites, will be seen at once.

[b] Categ. p. 14, a. 26, seq.

Prius, while the *Prius* does not presuppose the *Posterius*: for example, given two, the existence of one is necessarily implied; but given one, the existence of two is not implied.[a] The tertiary *Prius* is that which comes first in the arrangements of science or discourse: as, in geometry, point and line are prior as compared with the diagrams and demonstrations; in writing, letters are prior as compared with syllables; in speeches, the proem is prior as compared with the exposition. A fourth mode of *Prius* (which is the most remote and far-fetched) is, that the better and more honourable is *prius naturâ*. Still a fifth mode is, when, of two Relatives which reciprocate with each other as to existence, one is cause and the other effect: in such a case, the cause is said to be prior by nature to the effect.[b] For example, if it be a fact that Caius exists, the proposition "Caius exists," is a true proposition; and *vice versâ*, if the proposition "Caius exists" is a true proposition, it is a fact that Caius exists. But though from either of these you can infer the other, the truth of the proposition is the effect, and not the cause, of the reality of the fact. Hence it is correct to say that the latter is *prius naturâ*, and the former *posterius naturâ*.

This is a sort of article in a Philosophical Dictionary, tracing the various derivative senses of two very usual correlative phrases; and there is another article in the fourth book of the Metaphysica, where

[a] Aristot. Categ p. 14, a. 29, seq. This second mode of *Prius* is entitled by Alexander (see Schol. (ad Metaphys. Δ.) p. 707, b. 7, Brandis) *πρότερον τῇ φύσει*. But Aristotle does not so call it here; he reserves that title for the fourth and fifth modes.

It appears that debates, **Περὶ Προτέρου καὶ Ὑστέρου**, were frequent in the dialectic schools of Aristotle's day as well as debates, **Περὶ Ταὐτοῦ καὶ Ἑτέρου, Περὶ Ὁμοίου καὶ Ἀνομοίου, Περὶ Ταὐτότητος καὶ Ἐναντιότητος** (Arist. Metaph. B. p. 995, b. 20).

[b] Aristot. Categ. p. 14, b. 10.

the derivations of the same terms are again traced out, though by roads considerably different.* The two terms are relatives; *Prius* implies a *Posterius*, as *Simul* implies another *Simul*; and it is an useful process to discriminate clearly the various meanings assigned to each. Aristotle has done this, not indeed clearly nor consistently with himself, but with an earnest desire to elucidate what he felt to be confused and perplexing. Yet there are few terms in his philosophy which are more misleading. Though he sets out, plainly and repeatedly, the primary and literal sense of Priority, (the temporal or real), as discriminated from the various secondary and metaphorical senses, nevertheless when he comes to employ the term *Prius* in the course of his reasonings, he often does so without specifying in which sense he intends it to be understood. And as the literal sense (temporal or real priority) is the most present and familiar to every man's mind, so the term is often construed in this sense when it properly bears only the metaphorical sense. The confusion of logical or emotional priority (priority either in logical order of conception, or in esteem and respect) with priority in the order of time, involving separability of existence, is a frequent source of misunderstanding in the Aristotelian Physics and Metaphysics. The order of logical antecedence and sequence, or the fact of logical coexistence, is of great importance to be understood, with a view to the proof of truth, to the disproof of error, or to the systematization of our pro-

* Aristot. Metaphys. Δ. p. 1018, b. 11-p. 1019, a. 12. The article in the Metaphysica is better and fuller than that in the Categoriæ. In this last, *Order in Place* receives no special recognition, while we find such recognition in the Metaphysica, and we find also a fuller development of the varieties of the logical or intellectual *Prius*.

cesses of thought; but we must keep in mind that what is prior in the logical order is not for that reason prior in temporal order, or separable in real existence, or fit to be appealed to as a real Cause or Agent.*

* In the language of Porphyry, προϋφέστηκε (priority in real existence) means nothing more than προεννοεῖται (priority in the order of conception), Eisagoge, cc. xv., xvi.; Schol. Br. p. 6, a. 7-21.

CHAPTER IV.

DE INTERPRETATIONE.

IN the preceding chapter I enumerated and discussed what Aristotle calls the Categories. We shall now proceed to the work which stands second in the aggregate called the Organon—the treatise De Interpretatione.

We have already seen that the Aristotelian Ontology distinguishes one group of varieties of *Ens* (or different meanings of the term *Ens*) as corresponding to the diversity of the ten Categories; while recognizing also another variety of *Ens* as *Truth*, with its antithesis *Non-Ens* as *Falsehood*.* The former group was dealt with in the preceding chapter; the latter will form the subject of the present chapter. In both, indeed, Ontology is looked at as implicated with Logic; that is, *Ens* is considered as distributed under significant names, fit to be coupled in propositions. This is the common basis both of the Categoriæ and of the treatise De Interpretatione. The whole classification of the Categories rests on the assumption of the proposition with its constituent parts, and on the different relation borne by each of the nine *genera* of predicates towards their common Subject. But in the Categoriæ no account was taken of the distinction between truth and falsehood, in the application of these predicates to the Subject. If we say of Sokrates, that he is fair, pug-nosed, brave, wise, &c., we shall predicate truly; if we

* See above in the preceding chapter, p. 86.

say that he is black, high-nosed, cowardly, stupid, &c., we shall predicate falsely; but in each case our predicates will belong to the same Category—that of *Quale*. Whether we describe him as he now is, standing, talking, in the market-place at Athens; or whether we describe him as he is not, sitting down, singing, in Egypt—in both speeches, our predicates rank under the same Categories, *Jacere*, *Agere*, *Ubi*. No account is taken in the Categoriæ of the distinction between true and false application of predicates; we are only informed under what number of general heads all our predicates must be included, whether our propositions be true or false in each particular case.

But this distinction between *true* and *false*, which remained unnoticed in the Categoriæ, comes into the foreground in the treatise De Interpretatione. The Proposition, or *enunciative* speech,* is distinguished from other varieties of speech (interrogative, precative, imperative) by its communicating what is true or what is false. It is defined to be a complex significant speech, composed of two terms at least, each in itself significant, yet neither of them, separately taken, communicating truth or falsehood. The terms constituting the Proposition are declared to be a Noun in the nominative case, as Subject, and a Verb, as Predicate; this latter essentially connoting time, in order that the synthesis of the two may become the enunciation of a fact or quasi-fact, susceptible of being believed or disbelieved. All this mode of analysing a proposition, different from the analysis thereof given or implied in the Categoriæ, is conducted with a view to bring out prominently its function of imparting true or false information. The treatise called the Categoriæ is a theory of significant

* Aristot. De Interpret. p. 17, a. 1: λόγος ἀποφαντικός.

names subjicible and predicable, fit to serve as elements of propositions, but not yet looked at as put together into actual propositions; while in the treatise De Interpretatione they are assumed to be put together, and a theory is given of Propositions thus completed.

Words spoken are marks significant of mental impressions associated with them both by speaker and hearer; words written are symbols of those thus uttered. Both speech and writing differ in different nations, having no natural connection with the things signified. But these last, the affections or modifications of the mind, and the facts or objects of which they are representations or likenesses, are the same to all. Words are marks primarily and directly of the first, secondarily and indirectly of the second.[a] Aristotle thus recognizes these two aspects—first, the subjective, next the objective, as belonging, both of them conjointly, to significant language, yet as logically distinguishable; the former looking to the proximate *correlatum*, the latter to the ultimate.

For this doctrine, that the mental affections of mankind, and the things or facts which they represent, are the same everywhere, though the marks whereby they are signified differ, Aristotle refers us to his treatise De Animâ, to which he says that it properly belongs.[b] He thus recognizes the legitimate dependence of Logic on Psychology or Mental Philosophy.

[a] De Interpretat. p. 16, a. 3, seq. *ὧν μέντοι ταῦτα σημεῖα πρώτως, ταὐτὰ πᾶσι παθήματα τῆς ψυχῆς, καὶ ὧν ταῦτα ὁμοιώματα, πράγματα ἤδη ταὐτά.*

[b] Ibid. p. 16, a. 8: *περὶ μὲν οὖν τούτων εἴρηται ἐν τοῖς περὶ ψυχῆς· ἄλλης γὰρ πραγματείας.* It was upon this reference, mainly, that Andronikus the Rhodian rested his opinion, that the treatise De Interpretatione was not the work of Aristotle. Andronikus contended that there was nothing in the De Animâ to justify the reference. But Ammonius in his Scholia (p. 97, Brand.) makes a sufficient reply to the objection of Andronikus. The third book De Animâ (pp. 430-431) lays down the doctrine here alluded to. Compare Torstrick's Commentary, p. 210.

That which is signified by words (either single or in combination) is some variety of these mental affections or of the facts which they represent. But the signification of a single Term is distinguished, in an important point, from the signification of that conjunction of terms which we call a Proposition. A noun, or a verb, belonging to the aggregate called a language, is associated with one and the same phantasm[a] or notion, without any conscious act of conjunction or disjunction, in the minds of speakers and hearers: when pronounced, it arrests for a certain time the flow of associated ideas, and determines the mind to dwell upon that particular group which is called its meaning.[b] But neither the noun nor the verb, singly taken, does more than this; neither one of them affirms, or denies, or communicates any information true or false. For this last purpose, we must conjoin the two together in a certain way, and make a Proposition. The signification of the Proposition is thus specifically distinct from that of either of its two component elements. It communicates what purports to be matter of fact, which may be either true or false; in other words, it implies in the speaker, and raises in the hearer, the state of belief or disbelief, which does not attach either to the noun or to the verb separately. Herein the Proposition is discriminated

[a] Aristot. De Interpr. p. 16, a. 18: *τὰ μὲν οὖν ὀνόματα αὐτὰ καὶ τὰ ῥήματα ἔοικε τῷ ἄνευ διαιρέσεως καὶ συνθέσεως νοήματι, οἷον τὸ ἄνθρωπος καὶ τὸ λευκόν, ὅταν μὴ προστέθῃ τι· οὔτε γὰρ ψεῦδος οὔτε ἀληθές πω.*

[b] Aristot. De Interpret. p. 16, b. 19: *αὐτὰ μὲν καθ' ἑαυτὰ λεγόμενα τὰ ῥήματα ὀνόματά ἐστι καὶ σημαίνει τι (ἵστησι γὰρ ὁ λέγων τὴν διάνοιαν, καὶ ὁ ἀκούσας ἠρέμησεν) ἀλλ' εἰ ἐστὶν ἢ μή, οὔπω σημαίνει,* &c.

Compare Analyt. Poster. II. xix. pp. 99-100, where the same doctrine occurs: the movement of association is stopped, and the mind is determined to dwell upon a certain idea; one among an aggregate of runaways being arrested in flight, another halts also, and so the rest in succession, until at length the Universal, or the sum total, is detained, or "stands still" as an object of attention. Also Aristot. Problem. p. 956, b. 39.

from other significant arrangements of words (precative, interrogative, which convey no truth or falsehood), as well as from its own component parts. Each of these parts, noun and verb, has a significance of its own; but these are the ultimate elements of speech, for the parts of the noun or of the verb have no significance at all. The Verb is distinguished from the Noun by connoting time, and also by always serving as predicate to some noun as subject.[a]

Aristotle intimates his opinion, distinctly and even repeatedly, upon the main question debated by Plato in the Kratylus. He lays it down that all significant speech is significant by convention only, and not by nature or as a natural instrument.[b] He tells us also that, in this treatise, he does not mean to treat of all significant speech, but only of that variety which is known as *enunciative*. This last, as declaring truth or falsehood, is the only part belonging to Logic as he conceives it; other modes of speech, the precative, imperative, interrogative, &c., belong more naturally to Rhetoric or Poetic.[c] Enunciative speech may be either simple or complex; it may be one enunciation, declaring one predicate (either in one word or in several words) of one subject; or it may comprise several such.[d] The conjunction of the predicate with the subject constitutes the variety of proposition called

[a] Aristot. De Interpr. p. 16, b. 2, seq.

[b] Ibid. p. 16, a. 26; p. 17, a. 2.

[c] Aristot. De Interpr. p. 17, a. 6: ὁ δὲ ἀποφαντικὸς τῆς νῦν θεωρίας. See the Scholion of Ammonius, pp. 95, 96, 108, a. 27. In the last passage, Ammonius refers to a passage in one of the lost works of Theophrastus, wherein that philosopher distinguished τὸν ἀποφαντικὸν λόγον from the other varieties of λόγος, by the difference of σχέσις: the ἀποφαντικὸς λόγος was πρὸς τὰ πράγματα, or *objective*; the others were πρὸς τοὺς ἀκροωμένους, *i. e.* varying with the different varieties of hearers, or *subjective*.

[d] Aristot. De Interpr. p. 17, a. 20.

Affirmation; the disjunction of the same two is Negation or Denial.[a] But such conjunction or disjunction, operated by the cogitative act, between two mental states, takes place under the condition that, wherever conjunction may be enunciated, there also disjunction may be enunciated, and *vice versâ*. Whatever may be affirmed, it is possible also to deny; whatever may be denied, it is possible also to affirm.[b]

To every affirmative proposition there is thus opposed a contradictory negative proposition; to every negative a contradictory affirmative. This pair of contradictory opposites may be called an *Antiphasis*; always assuming that the predicate and subject of the two shall be really the same, without equivocation of terms—a proviso necessary to guard against troublesome puzzles started by the Sophists.[c] And we must also distinguish these propositions opposite as *Contradictories*, from propositions opposite as *Contraries*. For this, it has to be observed that there is a distinction among things (*πράγματα*) as universal or singular, according as they are, in their nature, predicable of a number or not: *homo* is an example of the first, and *Kallias* is an example of the second. When, now, we affirm a predicate universally, we must attach the mark of universality to the subject and not to the predicate; we must say, Every man is white, No man is white. We cannot attach the mark of universality to the predicate, and say, Every man is every animal; this

[a] Aristot. De Interp. p. 17, a. 25.

[b] Aristot. De Interpr. p. 17, a. 30: *ἅπαν ἂν ἐνδέχοιτο καὶ ὃ κατέφησέ τις ἀποφῆσαι, καὶ ὃ ἀπέφησέ τις καταφῆσαι.*

[c] Aristot. De Interpr. p. 17, a 33: *καὶ ἔστω ἀντίφασις τοῦτο, κατάφασις καὶ ἀπόφασις αἱ ἀντικείμεναι.*

It seems (as Ammonius observes, Schol. p. 112, a. 33) that *ἀντίφασις* in this sense was a technical term, introduced by Aristotle.

would be untrue.[a] An affirmation, then, is *contradictorily* opposed to a negation, when one indicates that the subject is universally taken, and the other, that the subject is taken not universally, *e.g. Omnis homo est albus, Non omnis homo est albus; Nullus homo est albus, Est aliquis homo albus.* The opposition is *contrary*, when the affirmation is universal, and the negation is also universal, *i.e.*, when the subject is marked as universally taken in each: for example, *Omnis homo est albus, Nullus homo est albus.* Of these contrary opposites, both cannot be true, but both may be false. Contradictory opposites, on the other hand, while they cannot both be true, cannot both be false; one must be false and the other true. This holds also where the subject is a singular term, as Sokrates.[b] If, however, an universal term appear as subject in the proposition *indefinitely*, that is, without any mark of universality whatever, *e.g.*, *Est albus homo, Non est albus homo*, then the affirmative and negative are not necessarily either contrary or contradictory, though they may be so sometimes: there is no opposition, properly speaking, between them; both may alike be true. This last observation (says Aristotle) will seem strange, because many persons suppose that *Non est homo albus* is equivalent to *Nullus homo est albus*; but the meaning

[a] Aristot. De Interpr. p. 17, a. 37-b. 14: *ἐπεὶ δ' ἐστὶ τὰ μὲν καθόλου τῶν πραγμάτων, τὰ δὲ καθ' ἕκαστον (λέγω δὲ καθόλου μὲν ὃ ἐπὶ πλειόνων πέφυκε κατηγορεῖσθαι, καθ' ἕκαστον δὲ ὃ μή, οἷον ἄνθρωπος μὲν τῶν καθόλου, Καλλίας δὲ τῶν καθ' ἕκαστον)·* &c. Ammonius (in Schol. p. 113, a. 38) says that what is predicated, either of many subjects or of one, must be *μία φύσις*.

The warning against quantifying the predicate appears in this logical treatise of Aristotle, and is repeated in the Analytica Priora, I. xxvii. p. 43, b. 17. Here we have: *οὐδεμία κατάφασις ἀληθὴς ἔσται, ἐν ᾗ τοῦ κατηγορουμένου καθόλου τὸ καθόλου κατηγορεῖται, οἷον ἔστι πᾶς ἄνθρωπος πᾶν ζῷον* (b. 14).

[b] Ibid. b. 16-29.

of the two is not the same, nor does the truth of the latter follow from that of the former,* since *homo* in the former may be construed as not universally taken.

It thus appears that there is always one negation corresponding to one and the same affirmation; making up together the *Antiphasis*, or pair of contradictory opposites, quite distinct from contrary opposites. By *one* affirmation we mean, that in which there is one predicate only, and one subject only, whether taken universally or not universally:

E. g.	Omnis homo est albus	Non omnis homo est albus.
	Est homo albus	Non est homo albus.
	Nullus homo est albus	Aliquis homo est albus.

But this will only hold on the assumption that *album* signifies one and the same thing. If there be one name signifying two things not capable of being generalized into one nature, or not coming under the same

* Aristot. De Interpret. p. 17, b. 29-37. Mr. John Stuart Mill (System of Logic, Bk. I. ch. iv. s. 4) cites and approves Dr. Whately's observation, that the recognition of a class of Propositions called *indefinite* "is a solecism, of the same nature as that committed by grammarians when in their list of genders they enumerate the *doubtful* gender. The speaker *must mean* to assert the proposition either as an universal or as a particular proposition, though he has failed to declare which."

But Aristotle would not have admitted Dr. Whately's doctrine, declaring what the speaker "*must mean*." Aristotle fears that his class, *indefinite*, will appear impertinent, because many speakers are not conscious of any distinction or transition between the particular and the general. The looseness of ordinary speech and thought, which Logic is intended to bring to view and to guard against, was more present to his mind than to that of Dr. Whately; moreover, the forms of Greek speech favoured the ambiguity.

Aristotle's observation illustrates the deficiencies of common speaking, as to clearness and limitation of meaning, at the time when he began to theorize on propositions.

I think that Whately's assumption —"the speaker *must mean*"—is analogous to the assumption on which Sir W. Hamilton founds his proposal for explicit quantification of the predicate, viz., that the speaker *must*, implicitly or mentally, quantify the predicate; and that his speech ought to be such as to make such quantification explicit. Mr. Mill has shewn elsewhere that this assumption of Sir W. Hamilton's is incorrect.

definition, then the affirmation is no longer one.[a] Thus if any one applies the term *himation* to signify both horse and man, then the proposition, *Est himation album*, is not one affirmation, but two; it is either equivalent to *Est homo albus* and *Est equus albus*—or it means nothing at all; for this or that individual man is not a horse. Accordingly, in this case also, as well as in that mentioned above, it is not indispensable that one of the two propositions constituting the *Antiphasis* should be true and the other false.[b]

With these exceptions Aristotle lays it down, that, in every *Antiphasis*, one proposition must be true and the other must be false. But (he goes on to say) this is only true in regard to matters past or present; it is not true in regard to events particular and future. To admit it in regard to these latter, would be to affirm that the sequences of events are all necessary, and none of them casual or contingent; whereas we know, by our own personal experience, that many sequences depend upon our deliberation and volition, and are therefore not necessary. If all future sequences are necessary, deliberation on our part must be useless. We must therefore (he continues) recognize one class of sequences which are not uniform—not predetermined by antecedents; events which *may* happen, but which also *may not* happen, for they will not happen. Thus, my coat *may* be cut into two halves, but it never *will* be so cut; it will wear out without any such bisection occurring.[c]

[a] Aristot. De Interpr. p. 18, a. 13, seq.: *μία δέ ἐστι κατάφασις καὶ ἀπόφασις ἡ ἓν καθ' ἑνὸς σημαίνουσα, ἢ καθόλου ὄντος καθόλου ἢ μὴ ὁμοίως, οἷον πᾶς ἄνθρωπος λευκός ἐστιν . . . εἰ τὸ λευκὸν ἓν σημαίνει. εἰ δὲ δυοῖν ἓν ὄνομα κεῖται, ἐξ ὧν μή ἐστιν ἕν, οὐ μία κατάφασις*, &c., and the Scholion of Ammonius, p. 116, b. 6, seq.

[b] Aristot. De Interpr. p. 18, a. 26. The example which Aristotle here gives is one of a *subject* designated by an equivocal name; when he had begun with the *predicate*. It would have been more pertinent if he had said at first, *εἰ ὁ ἄνθρωπος ἓν σημαίνει*.

[c] Aristot. De Interpr. p. 18, a. 28-p. 19, b. 4.

If you affirm the reality of a fact past or present, your affirmation is of necessity determinately true, or it is determinately false, *i.e.* the contradictory negation is determinately true. But if you affirm the reality of a fact to come, then your affirmation is not by necessity determinately true, nor is the contradictory negation determinately true. Neither the one nor the other separately is true: nothing is true except the disjunctive antithesis as a whole, including both. If you say, To-morrow there will either be a sea-fight, or there will not be a sea-fight, this disjunctive or indeterminate proposition, taken as a whole, will be true. Yet neither of its constituent parts will be determinately true; neither the proposition, To-morrow there will be a sea-fight, nor the proposition, To-morrow there will not be a sea-fight. But if you speak with regard to past or present—if you say, Yesterday either there was a sea-fight or there was not a sea-fight—then not only will the disjunctive as a whole be true, but also one or other of its parts will be determinately true.*

This remarkable logical distinction is founded on Aristotle's ontological or physical doctrines respecting the sequence and conjunction of events. He held (as we shall see more fully in the Physica and other treatises) that sequences throughout the Kosmos were to a certain extent regular, to a certain extent irregular. The exterior sphere of the Kosmos (the *Aplanēs*) with the countless number of fixed stars fastened into it, was a type of regularity and uniformity; eternal and ever moving in the same circular orbit, by necessity of its own nature, and without any potentiality of doing

* Aristot. De Interpr. p. 18, b. 29. Ammonius (Scholia ad De Interpret. p. 119, bb. 18, 28, seq.) expresses Aristotle's meaning in terms more distinct than Aristotle himself: *μὴ πάντως ἔχειν τὸ ἕτερον μόριον τῆς ἀντιφάσεως ἀφωρισμένως ἀληθεύον*, &c. (b. 43).

otherwise. But the earth and the elemental bodies, organized and unorganized, below the lunar sphere and in the interior of the Kosmos, were of inferior perfection and of very different nature. They were indeed in part governed and pervaded by the movement and influence of the celestial substance within which they were comprehended, and from which they borrowed their Form or constituent essence; but they held this Form implicated with Matter, *i.e.* the principle of potentiality, change, irregularity, generation, and destruction, &c. There are thus in these sublunary bodies both constant tendencies and variable tendencies. The *constant* Aristotle calls 'Nature;' which always aspires to Good, or to perpetual renovation of Forms as perfect as may be, though impeded in this work by adverse influences, and therefore never producing any thing but individuals comparatively defective and sure to perish. The *variable* he calls 'Spontaneity' and 'Chance,' forming an independent agency inseparably accompanying Nature—always modifying, distorting, frustrating, the full purposes of Nature. Moreover, the different natural agencies often interfere with each other, while the irregular tendency interferes with them all. So far as Nature acts, in each of her distinct agencies, the phenomena before us are regular and predictable; all that is uniform, and all that (without being quite uniform) recurs usually or frequently, is her work. But, besides and along with Nature, there is the agency of Chance and Spontaneity, which is essentially irregular and unpredictable. Under this agency there are possibilities both for and against; either of two alternative events may happen.

It is with a view to this doctrine about the variable kosmical agencies or potentialities that Aristotle lays down the logical doctrine now before us, distinguishing propositions affirming particular facts past or present,

from propositions affirming particular facts future. In both cases alike, the disjunctive antithesis, as a whole, is necessarily true. Either there was a sea-fight yesterday, or there was not a sea-fight yesterday: Either there will be a sea-fight to-morrow, or there will not be a sea-fight to-morrow—both these disjunctives alike are necessarily true. There is, however, a difference between the one disjunctive couple and the other, when we take the affirmation separately or the negation separately. If we say, There will be a sea-fight to-morrow, that proposition is not necessarily true nor is it necessarily false; to say that it is either the one or the other (Aristotle argues) would imply that every thing in nature happened by necessary agency—that the casual, the potential, the *may be or may not be*, is stopped out and foreclosed. But this last is really the case, in regard to a past fact. There was a sea-fight yesterday, is a proposition either necessarily true or necessarily false. Here the antecedent agencies have already spent themselves, blended, and become realized in one or other of the two alternative determinate results. There is no potentiality any longer open; all the antecedent potentiality has been foreclosed. The proposition therefore is either necessarily true or necessarily false; though perhaps we may not know whether it is the one or the other.

In defending his position regarding this question, Aristotle denies (what he represents his opponents as maintaining) that all events happen by necessity. He points to the notorious fact that we deliberate and take counsel habitually, and that the event is frequently modified, according as we adopt one mode of conduct or another; which could not be (he contends), if the event could be declared beforehand by a proposition necessarily or determinately true. What Aristotle

means by *necessity*, however, is at bottom nothing else than constant sequence or conjunction, conceived by him as necessary, because the fixed ends which Nature is aiming at can only be attained by certain fixed means. To this he opposes Spontaneity and Chance, disturbing forces essentially inconstant and irregular; admitting, indeed, of being recorded when they *have* produced effects in the past, yet defying all power of prediction as to those effects which they *will* produce in the future. Hence arises the radical distinction that he draws in Logic, between the truth of propositions relating to the past (or present) and to the future.

But this logical distinction cannot be sustained, because his metaphysical doctrine (on which it is founded) respecting the essentially irregular or casual, is not defensible. His opponents would refuse to grant that there is any agency essentially or in itself irregular, casual, and unpredictable.* The aggregate of Nature

* The Stoics were opposed to Aristotle on this point. They recognized no logical difference in the character of the Antiphasis, whether applied to past and present, or to future. Nikostratus defended the thesis of Aristotle against them. See the Scholia of Simplikius on the Categoriæ, p. 87, b. 30-p. 88, a. 24. *αἱ γὰρ εἰς τὸν μέλλοντα χρόνον ἐγκλινόμεναι προτάσεις οὔτε ἀληθεῖς εἰσὶν οὔτε ψευδεῖς διὰ τὴν τοῦ ἐνδεχομένου φύσιν.*

The remarks of Hobbes, upon the question here discussed by Aristotle, well deserve to be transcribed (De Corpore, part II. ch. x. s. 5):—

"But here, perhaps, some man may ask whether those future things, which are called *contingents*, are necessary. I say, therefore, that generally all contingents have their necessary causes, but are called contingents in respect of other events, upon which they do not depend; as the rain, which shall be to-morrow, shall be necessary, that is, from necessary causes; but we think and say, it happens by chance, because we do not yet perceive the causes thereof, though they exist now. For men commonly call that *casual* or *contingent*, whereof they do not perceive the necessary cause; and in the same manner they use to speak of things past, when not knowing whether a thing be done or no, they say, it is possible it never was done.

"Wherefore, all propositions concerning future things, contingent or not contingent—as this, *It will rain to-morrow*, or this, *To-morrow the sun will rise*—are either necessarily true, or necessarily false; but we call them contingent, because we do not yet know whether they be true or false; whereas their verity depends not upon our knowledge, but upon the fore-

consists of a variety of sequences, each of them constant and regular, though intermixed, co-operating, and conflicting with each other, in such manner that the resulting effects are difficult to refer to their respective causes, and are not to be calculated beforehand except by the highest scientific efforts; often, not by any scientific efforts. We must dismiss the hypothesis of Aristotle, assuming agencies essentially irregular and unpredictable, either as to the past or as to the future. The past has been brought about by agencies all regular, however multifarious and conflicting, and the future will be brought about by the like: there is no such distinction of principle as that which Aristotle lays down between propositions respecting the past and propositions respecting the future.

going of their causes. But there are some, who, though they confess this whole proposition, *To-morrow it will either rain or not rain*, to be true, yet they will not acknowledge the parts of it, as *To-morrow it will rain*, or *To-morrow it will not rain*, to be either of them true by itself; because they say neither this nor that is true *determinately*. But what is this *determinately true*, but true *upon our knowledge*, or evidently true? And therefore they say no more, but that it is not yet known whether it be true or no; but they say it more obscurely, and darken the evidence of the truth with the same words with which they endeavour to hide their own ignorance."

Compare also the fuller elucidation of the subject given by Mr. John Stuart Mill, in his System of Logic, Bk. III. ch. xvii. s. 2:—"An event occurring by chance may be better described as a coincidence from which we have no ground to infer an uniformity; the occurrence of an event in certain circumstances, without our having reason on that account to infer that it will happen again in those circumstances. This, however, when looked closely into, implies that the enumeration of the circumstances is not complete. Whatever the fact was, since it has occurred once, we may be sure that if *all* the circumstances were repeated, it would occur again; and not only if all, but there is some particular portion of those circumstances, on which the phenomenon is invariably consequent. With most of them, however, it is not connected in any permanent manner: its conjunction with those is said to be the effect of chance, to be merely casual. Facts casually conjoined are separately the effect of causes, and therefore of laws; but of different causes, and causes not connected by any law. It is incorrect then to say that any phenomenon is produced by chance; but we may say that two or more phenomena are conjoined by chance, that they coexist or succeed one another only by chance."

There is, indeed, one distinction between inferences as to the past and inferences as to the future, which may have contributed to suggest, though it will not justify, the position here laid down by Aristotle. In regard to the disjunctive—To-morrow there will be a sea-fight, or there will not be a sea-fight—nothing more trustworthy than inference or anticipation is practicable: the anticipation of a sagacious man with full knowledge is more likely to prove correct than that of a stupid man with little knowledge; yet both are alike anticipations, unverifiable at the present moment. But if we turn to the other disjunctive—Yesterday there was a sea-fight, or there was not a sea-fight—we are no longer in the same position. The two disputants, supposed to declare thus, may have been far off, and may have no other means of deciding the doubt than inference. But the inference here is not unverifiable: there exist, or may exist, witnesses or spectators of the two fleets, who can give direct attestation of the reality, and can either confirm or refute the inference, negative or affirmative, made by an absentee. Thus the proposition, Yesterday there was a sea-fight, or the other, Yesterday there was not a sea-fight, will be verifiable or determinably true. There are indeed many inferences as to the past, in regard to which no direct evidence is attainable. Still this is an accident; for such direct evidence may always be supposed or imagined as capable of being brought into court. But, in respect to the future, verification is out of the question; we are confined to the region of inference, well or ill-supported. Here, then, we have a material distinction between the past and the future. It was probably present to the mind of Aristotle, though he misconceives its real extent of operation, and makes it subservient to his still

more comprehensive classification of the different contemporaneous agencies (regular and irregular) which he supposes to pervade the Kosmos.

In the treatise before us, he next proceeds to state what collocation of the negative particle constitutes the special or legitimate negation to any given affirmation, or what are the real forms of proposition, standing in contradictory opposition to certain other forms, so as to make up one *Antiphasis*.[a] The simplest proposition must include a noun and a verb, either definite or indefinite: *non homo*, is a specimen of an indefinite noun—*non currit*, of an indefinite verb. There must be, in any one proposition, one subject and one predicate; even the indefinite noun or verb signifies, in a certain sense, one thing. Each affirmation comprises a noun, or an indefinite noun, with a verb; the special corresponding or contradictory negation (making up the *Antiphasis* along with the former) comprises a noun (or an indefinite noun) with an indefinite verb. The simplest proposition is—

Affirmative.	*Contradictory Negative.*
Est homo	Non est homo.
Est non homo	Non est non homo.

Here are only two pairs of antithetic propositions, or one quaternion. The above is an indefinite proposition (which may be either universal or not). When we universalize it, or turn it into an universal proposition, we have—

Affirmative.	*Contradictory Negative.*
Est omnis homo	Non est omnis homo.
Est omnis non homo	Non est omnis non homo.

The above are specimens of the smallest proposition; but when we regard larger propositions, such as those (called *tertii adjacentis*) where there are two terms besides *est*, the collocation of the negative particle be-

[a] Aristot. De Interpr. p. 19, b. 5, seq.

comes more complicated, and requires fuller illustration. Take, as an example, the affirmative *Est justus homo*, the true negation of this is, *Non est justus homo*. In these two propositions, *homo* is the subject; but we may join the negative with it, and we may consider *non homo*, not less than *homo*, as a distinct subject for predication, affirmative or negative. Farther, we may attach *est* and *non est* either to *justus* or to *non justus* as the predicate of the proposition, with either *homo*, or *non homo*, as subject. We shall thus obtain a double mode of antithesis, or two distinct quaternions, each containing two pairs of contradictory propositions. The second pair of the first quaternion will not be in the same relation as the second pair of the second quaternion, to the proposition just mentioned, viz.—(A) *Est justus homo*; with its negative, (B) *Non est justus homo*.[a]

First, let us assume *homo* as subject. We have then

(QUATERNION I.)

(A) Est justus homo (B) Non est justus homo.
(D) Non est non justus homo (C) Est non justus homo.

Examining the relation borne by the last two among these four propositions (C and D), to the first two

[a] Aristot. De Interpr. p. 19, b. 19. *ὅταν δὲ τὸ ἔστι τρίτον προσκατηγορῆται, ἤδη διχῶς λέγονται αἱ ἀντιθέσεις· λέγω δὲ οἷον ἔστι δίκαιος ἄνθρωπος· τὸ ἔστι τρίτον φημὶ συγκεῖσθαι ὄνομα ἢ ῥῆμα ἐν τῇ καταφάσει. ὥστε διὰ τοῦτο τέτταρα ἔσται ταῦτα, ὧν τὰ μὲν δύο πρὸς τὴν κατάφασιν καὶ ἀπόφασιν ἕξει κατὰ τὸ στοιχοῦν ὡς αἱ στερήσεις, τὰ δὲ δύο, οὔ. [λέγω δὲ ὅτι τὸ ἔστιν ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ], ὥστε καὶ ἡ ἀπόφασις. τέτταρα οὖν ἔσται. νοοῦμεν δὲ τὸ λεγόμενον ἐκ τῶν ὑπογεγραμμένων.* In this passage the words which I have enclosed between brackets are altered by Waitz: I shall state presently what I think of his alteration. Following upon these words there ought to be, and it seems from Ammonius (Schol. p. 121, a. 20) that there once was, a scheme or table arranging the four propositions in the order and disposition which we read in the Analytica Priora, I. xlvi. p. 51, b. 37, and which I shall here follow. But no such table now appears in our text; we have only an enumeration of the four propositions, in a different order, and then a reference to the Analytica.

(A and B), the simple affirmative and negative, we see that B is the legitimate negative of A, and D that of C. We farther see that B is a consequence of C, and D a consequence of A, but not *vice versâ*: that is, if C is true, B must certainly be true; but we cannot infer, because B is true, that C must also be true: while, if A is true, D must also be true; but D may perhaps be true, though A be not true. In other words, the relation of D to A and of C to B, is the same as it would be if the privative term *injustus* were substituted in place of *non justus*; *i.e.* if the proposition C (*Est injustus homo*) be true, the other proposition B (*Non est justus homo*), must certainly be true, but the inference will not hold conversely; while if the proposition A (*Est justus homo*), be true, it must also be true to say D (*Non est injustus homo*), but not *vice versâ*.*

Such is the result obtained when we take *homo* as the subject of the proposition; we get four propositions, of which the two last (C and D) stand to the

* Referring to the words cited in the preceding note, I construe τὰ δὲ δύο, οὔ as Boethius does (II. pp. 384-385), and not in agreement with Ammonius (Schol. p. 122, a. 26, Br.), who, however, is followed both by Julius Pacius and Waitz (p. 344). I think it impossible that these words, τὰ δὲ δύο, οὔ, can mean (as Ammonius thinks) the κατάφασις and ἀπόφασις themselves, since the very point which Aristotle is affirming is the relation of these words, πρὸς τὴν κατάφασιν καὶ ἀπόφασιν, *i. e.* to the affirmative and negative started from—

(A) Est justus homo (B) Non est justus homo.

As the words τὰ μὲν δύο refer to the second contradictory pair (that is, C and D) in the *first* Quaternion, so the words τὰ δὲ δύο, οὔ designate the second contradictory pair (G and H) in the *second* Quaternion. Though G and H are included in the second Quaternion, they are here designated by the negative relation (τὰ δὲ δύο, οὔ) which they bear to A and B, the first contradictory pair of the *first* Quaternion. διχῶς λέγονται αἱ ἀντιθέσεις (line 20) is explained and illustrated by line 37—αὗται μὲν οὖν δύο ἀντίκεινται, ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν. Lastly, Aristotle expressly states that the second Quaternion will stand independently and by itself (p. 20, a. 1), having noticed it in the beginning only in relation to the first.

two first (B and A) in the same relation as if they (C and D) were privative propositions. But if, instead of *homo*, we take *non homo* as Subject of the proposition (*justus* or *non justus* being predicates as before), we shall then obtain two other pairs of contradictory propositions; and the second pair of this new quaternion will not stand in that same relation to these same propositions B and A. We shall then find that, instead of B and A, we have a different negative and a different affirmative, as the appropriate correlates to the third and fourth propositions. The new quaternion of propositions, with *non homo* as subject, will stand thus—

(QUATERNION II.)

(E) Est justus non homo (F) Non est justus non homo.
(H) Non est non justus non homo .. (G) Est non justus non homo.*

Here we see that propositions G and H do not stand to B and A in the same relations as C and D stand to B and A; but that they stand in that same relation to two perfectly different propositions, F and E. That is, if in place of *non justus*, in propositions G and H, we substitute the privative term *injustus* (thus turning

* Aristot. De Interpr. p. 19, b. 36. *αὗται μὲν οὖν δύο ἀντίκεινται* (the two pairs—A B and C D—of the first quaternion)· *ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν·*

(E) *ἔστι δίκαιος οὐκ ἄνθρωπος (F) οὐκ ἔστι δίκαιος οὐκ ἄνθρωπος.*
(H) *οὐκ ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος .. (G) ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος.*

πλείους δὲ τούτων οὐκ ἔσονται ἀντιθέσεις. αὗται δὲ χωρὶς ἐκείνων αὐταὶ καθ' ἑαυτὰς ἔσονται, ὡς ὀνόματι τῷ οὐκ ἄνθρωπος χρώμεναι. The second *αὗται* alludes to this last quaternion, *ἐκείνων* to the first. I have, as in the former case, transposed propositions three and four of this second quaternion, in order that the relation of G to F and of H to E may be more easily discerned.

There are few chapters in Aristotle more obscure and puzzling than the tenth chapter of the De Interpretatione. It was found so by Alexander, Herminus, Porphyry, Ammonius, and all the Scholiasts. Ammonius (Schol. pp. 121, 122, Br.) reports these doubts, and complains of it as a riddle almost insoluble. The difficulties remain, even after the long note of Waitz, and the literal translation of M. Barthélemy St. Hilaire.

G into *Est injustus non homo*, and turning H into *Non est injustus non homo*), the relation of G, when thus altered, to F, and the relation of H, when thus altered, to E, will be the same as it was before. Or, in other words, if G be true, F will certainly be true, but not *vice versâ*; and if E be true, H will certainly be true, but not *vice versâ*.

The propositions which we have hitherto studied have been indefinite; that is, they might be universal or not. But if we attach to them the sign of universality, and construe them as universals, all that we have said about them would still continue to be true, except that the propositions which are diametrically (or diagonally) opposed would not be both true in so many instances. Thus, let us take the first quaternion of propositions, in which *est* is attached to *homo*, and let us construe these propositions as universal. They will stand thus—

(A) Omnis est homo justus (B) Non omnis est homo justus.
(D) Non omnis est homo non justus .. (C) Omnis est homo non justus.

In these propositions, as in the others before noticed, the same relation prevails between C and B, and between A and D; if C be true, B also is true, but not *vice versâ*; if A be true, D also will be true, but not *vice versâ*. But the propositions diagonally opposed will not be so often alike true:[a] thus, if A be true (*Omnis est homo justus*), C cannot be true (*Omnis est homo non justus*); whereas in the former quaternion of propositions (indefinite, and therefore capable of being construed as not universal) A and C might both be alike true.[b]

[a] Aristot. De Interpret. p. 19, b. 35. πλὴν οὐχ ὁμοίως τὰς κατὰ διάμετρον ἐνδέχεται συναληθεύειν· ἐνδέχεται δὲ ποτέ. The "diameter" or "diagonal" is to be understood with reference to the scheme or square mentioned p. 171, note, the related propositions standing at the angles, as above.

[b] The Scholion of Ammonius, p. 123, a. 17, Br., explains this very obscure passage: ἀλλ' ἐπὶ μὲν τῶν ἀπροσδιορίστων (indefinite proposi-

It is thus that Aristotle explains the distinctions of meaning in propositions, arising out of the altered collocation of the negative particle; the distinction between (1) *Non est justus*, (2) *Est non justus*, (3) *Est injustus*. The first of the three is the only true negative, corresponding to the affirmative *Est justus*. The second is not a negative at all, but an affirmative (*ἐκ μεταθέσεως*, or by transposition, as Theophrastus afterwards called it). The third is an affirmative, but privative. Both the second and the third stand related in the same manner to the first; that is, the truth of the first is a necessary consequence either of the second or of the third, but neither of these can be certainly inferred from the first. This is explained still more clearly in the Prior Analytics; to which Aristotle here makes express reference.[a]

tions, such as may be construed either as universal or as particular), *κατὰ τὴν ἐνδεχομένην ὕλην τάς τε καταφάσεις* (of the propositions diagonally opposite), *συναληθεύειν ἀλλήλαις συμβαίνει καὶ τὰς ἀποφάσεις, ἅτε ταῖς μερικαῖς ἰσοδυναμούσας. ἐπὶ δὲ τῶν προσδιωρισμένων* (those propositions where the mark of universality is tacked to the Subject), *περὶ ὧν νυνὶ αὐτῷ ὁ λόγος, τῆς καθόλου καταφάσεως καὶ τῆς ἐπὶ μέρους ἀποφάσεως, τὰς μὲν καταφάσεις ἀδύνατον συναληθεῦσαι καθ' οἱανδήποτε ὕλην, τὰς μέντοι ἀποφάσεις συμβαίνει συναληθεύειν κατὰ μόνην τὴν ἐνδεχομένην* &c.

[a] Aristot. De Interpr. p. 19, b. 31. *ταῦτα μὲν οὖν, ὥσπερ ἐν τοῖς Ἀναλυτικοῖς λέγεται, οὕτω τέτακται.*

Waitz in his note suggests that instead of *τέτακται* we ought to read *τετάχθω*. But if we suppose that the formal table once existed in the text, in an order of arrangement agreeing with the Analytica, this conjectural change would be unnecessary.

Waitz has made some changes in the text of this chapter, which appear to me partly for the better, partly not for the better. Both Bekker and Bussemaker (Firmin Didot) retain the old text; but this old text was a puzzle to the ancient commentators, even anterior to Alexander of Aphrodisias. I will here give first the text of Bekker, next the changes made by Waitz: my own opinion does not wholly coincide with either. I shall cite the text from p. 19, b. 19, leaving out the portion between lines 30 and 36, which does not bear upon the matter here discussed, while it obscures the legitimate sequence of Aristotle's reasoning.

(Bekker.)—*Ὅταν δὲ τὸ ἔστι τρίτον προσκατηγορῆται, ἤδη διχῶς λέγονται αἱ ἀντιθέσεις. λέγω δὲ οἷον ἔστι δίκαιος ἄνθρωπος· τὸ ἔστι τρίτον φημὶ συγκεῖσθαι ὄνομα ἢ ῥῆμα ἐν τῇ καταφάσει. ὥστε διὰ*

After this very subtle and obscure distinction between propositions *secundi adjacentis*, and those *tertii adjacentis*,

τοῦτο τέτταρα ἔσται ταῦτα, ὧν τὰ μὲν δύο πρὸς τὴν κατάφασιν καὶ ἀπόφασιν ἕξει κατὰ τὸ στοιχοῦν ὡς αἱ στερήσεις, τὰ δὲ δύο οὔ. λέγω δ' ὅτι τὸ ἔστιν ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ (25), ὥστε καὶ ἡ ἀπόφασις. τέτταρα οὖν ἔσται. (Here follow the first pairs of Antitheses, or the first Quaternion of propositions in the order as given)—

(A) ἔστι δίκαιος ἄνθρωπος (B) οὐκ ἔστι δίκαιος ἄνθρωπος.
(C) ἔστιν οὐ δίκαιος ἄνθρωπος (D) οὐκ ἔστιν οὐ δίκαιος ἄνθρωπος.

τὸ γὰρ ἔστιν ἐνταῦθα καὶ τὸ οὐκ ἔστι τῷ δικαίῳ προσκείσεται καὶ τῷ οὐ δικαίῳ (30).—Αὗται μὲν οὖν δύο ἀντίκεινται, ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι (38) προστεθέν. (Here follow the second pairs of Antitheses, or the second Quaternion of propositions, again in the order from which I have departed above)—

(E) ἔστι δίκαιος οὐκ ἄνθρωπος (F) Οὐκ ἔστι δίκαιος οὐκ ἄνθρωπος.
(G) ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος .. (H) Οὐκ ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος.

πλείους δὲ τούτων οὐκ ἔσονται ἀντιθέσεις. αὗται δὲ (the second Quaternion) χωρὶς ἐκείνων (first Quaternion) αὐταὶ καθ' ἑαυτὰς ἔσονται, ὡς ὀνόματι τῷ οὐκ ἄνθρωπος χρώμεναι.

In this text Waitz makes three alterations:—1. In line 24, instead of ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ—he reads, ἢ τῷ ἀνθρώπῳ προσκείσεται ἢ τῷ οὐκ ἀνθρώπῳ.

2. In line 30 he makes a similar change; instead of τῷ δικαίῳ προσκείσεται καὶ τῷ οὐ δικαίῳ—he reads, τῷ ἀνθρώπῳ προσκείσεται καὶ τῷ οὐκ ἀνθρώπῳ.

In line 38, instead of προστεθέν, he reads προστεθέντος.

Of these three alterations the first appears to me good, but insufficient; the second not good, though the passage as it stands in Bekker requires amendment; and the third, a change for the worse.

The purpose of Aristotle is here twofold. First, to give the reason why, when the propositions were *tertii adjacentis*, there were two Quaternions or four couples of antithetical propositions; whereas in propositions *secundi adjacentis*, there was only one Quaternion or two couples of antithetical propositions. Next, to assign the distinction between the first and the second Quaternion in propositions *tertii adjacentis*.

Now the first of these two purposes is marked out in line 25, which I think we ought to read not by substituting the words of Waitz in place of the words of Bekker, but by retaining the words of Bekker and inserting the words of Waitz as an addition to them. The passage after such addition will stand thus—λέγω δ' ὅτι τὸ ἔστιν ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ, καὶ ἢ τῷ ἀνθρώπῳ ἢ τῷ οὐκ ἀνθρώπῳ, ὥστε καὶ ἡ ἀπόφασις. τέτταρα οὖν ἔσται. Here Aristotle declares the *reason why* (οὖν) there come to be four couples of propositions; that reason is, because ἔστι and οὐκ ἔστι may be joined either with δίκαιος or with οὐ δίκαιος, and either with ἄνθρωπος or with οὐκ ἄνθρωπος. Both these alternatives must be specified in order to make out a reason why there are two Quaternions or four couples of antithetical propositions. But the

in respect to the application of the negative, Aristotle touches on the relation of *contrariety* between propo-

passage, as read by Bekker, gives only one of these alternatives, while the passage, as read by Waitz, gives only the other. Accordingly, neither of them separately is sufficient; but both of them taken together furnish the reason required, and thus answer Aristotle's purpose.

Aristotle now proceeds to enunciate the first of the two Quaternions, and then proceeds to line 30, where the reading of Bekker is irrelevant and unmeaning; but the amendment of Waitz appears to me still worse, being positively incorrect in statement of fact. Waitz reads *τὸ γὰρ ἔστιν ἐνταῦθα* (in the first Quaternion, which has just been enunciated) *καὶ τὸ οὐκ ἔστιν τῷ ἀνθρώπῳ προσκείσεται καὶ τῷ οὐκ ἀνθρώπῳ*. These last words are incorrect in fact, for *οὐκ ἄνθρωπος* does not appear in the first Quaternion, but is reserved for the second. While the reading of Waitz is thus evidently wrong, that of Bekker asserts nothing to the purpose. It is useless to tell us merely that *ἔστιν* and *οὐκ ἔστιν* attach both to *δίκαιος* and to *οὐ δίκαιος* in this first Quaternion (*ἐνταῦθα*), because that characteristic is equally true of the second Quaternion (presently to follow), and therefore constitutes no distinction between the two. To bring out the meaning intended by Aristotle I think we ought here also to retain the words of Bekker, and to add after them some, though not all, of the words of Waitz. The passage would then stand thus—*τὸ γὰρ ἔστιν ἐνταῦθα καὶ τὸ οὐκ ἔστι τῷ δικαίῳ προσκείσεται καὶ τῷ οὐ δικαίῳ, καὶ τῷ ἀνθρώπῳ, ἀλλ' οὐ τῷ οὐκ ἀνθρώπῳ*. Or perhaps *καὶ οὐ τῷ οὐκ ἀνθρώπῳ* might suffice in the last clause (being a smaller change), though *ἀλλ' οὐ* seem the proper terms to declare the meaning. In the reading which I propose, the sequence intended by Aristotle is clear and intelligible. Having first told us that *ἔστιν* and *οὐκ ἔστι*, being joined alternately with *δίκαιος* and with *οὐ δίκαιος*, and also with *ἄνθρωπος* and *οὐκ ἄνθρωπος*, make up two Quaternions, he proceeds to enunciate the distinctive character belonging to the first Quaternion of the two, viz., that in it *ἔστι* and *οὐκ ἔστιν* are joined both with *δίκαιος* and *οὐ δίκαιος*, and also with *ἄνθρωπος*, *but not with οὐκ ἄνθρωπος*. This is exactly the truth.

Aristotle next proceeds to the second Quaternion, where he points out, as the characteristic distinction, that *οὐκ ἄνθρωπος* comes in and *ἄνθρωπος* disappears, while *δίκαιος* and *οὐ δίκαιος* remain included, as in the first. This is declared plainly by Aristotle in line 37:—*αὗται μὲν οὖν δύο ἀντίκεινται* (referring to the two pairs of antithetical propositions in the first Quaternion), *ἄλλαι δὲ πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν· ἔστι δίκαιος οὐκ ἄνθρωπος-οὐκ ἔστι δίκαιος οὐκ ἄνθρωπος, ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος-οὐκ ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος*. When we read these words, *ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν*, as applied to the second Quaternion, we see that there must have been some words preceding which excluded *οὐκ ἄνθρωπος* from the first Quaternion. Waitz contends for the necessity of changing *προστεθέν* into *προστεθέντος*. I do not concur with his reasons for the change; the words that follow, p. 20, line 2, *ὡς ὀνόματι τῷ οὐκ ἄνθρω-*

sitions. The universal affirmation *Omne est animal justum* has for its contrary *Nullum est animal justum*. It is plain that both these propositions will never be true at once. But the negatives or contradictories of both may well be true at once; thus, *Non omne animal est justum* (the contradictory of the first) and *Est aliquid animal justum* (the contradictory of the second) may be and are both alike true. If the affirmative proposition *Omnis homo est non justus* be true, the negative *Nullus est homo justus* must also be true; if the affirmative *Est aliquis homo justus* be true, the negative *Non omnis homo est non justus* must also be true. In singular propositions, wherever the negative or denial is true, the indefinite affirmative (ἐκ μεταθέσεως, in the language of Theophrastus) corresponding to it will also be true; in universal propositions, the same will not always hold. Thus, if you ask, Is Sokrates wise? and receive for answer No, you are warranted in affirming, Sokrates is not wise (the indefinite affirmation). But if you ask, Are all men wise? and the answer is No, you are not warranted in affirming, All men are not wise. This last is the contrary of the proposition, All men are wise; and two contraries may both be false. You are warranted in declaring only the contradictory negative, Not all men are wise.[a]

Neither the indefinite noun (οὐκ ἄνθρωπος), nor the

πος χρώμεναι (προσχρώμεναι), are a reasonable justification of προστεθέν—οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν being very analogous to οὐκ ἄνθρωπος ὡς ὄνομα.

This long note, for the purpose of restoring clearness to an obscure text, will appear amply justified if the reader will turn to the perplexities and complaints of the ancient Scholiasts, revealed by Ammonius and Boethius. Even earlier than the time of Alexander (Schol. p. 122, b. 47) there was divergence in the MSS. of Aristotle; several read τῷ δικαίῳ (p. 19, b. 25), several others read τῷ ἀνθρώπῳ. I think that all of them were right in what they retained, and wrong by omission only or mainly.

[a] Aristot. De Interpret. p. 20, a. 16-30.

indefinite verb (*οὐ τρέχει—οὐ δίκαιος*) is a real and true negation, though it appears to be such. For every negation ought to be either true or false; but *non homo*, if nothing be appended to it, is not more true or false (indeed less so) than *homo*.[a]

The transposition of substantive and adjective makes no difference in the meaning of the phrase; *Est albus homo* is equivalent to *Est homo albus*. If it were not equivalent, there would be two negations corresponding to the same affirmation; but we have shown that there can be only one negation corresponding to one affirmation, so as to make up an *Antiphasis*.[b]

In one and the same proposition, it is indispensable that the subject be one and the predicate one; if not, the proposition will not be one, but two or more. Both the subject and the predicate indeed may consist of several words; but in each case the several words must coalesce to make one total unity; otherwise the proposition will not be one. Thus, we may predicate of man—*animal, bipes, mansuetum*; but these three coalesce into one, so that the proposition will be a single one. On the other hand the three terms *homo, albus, ambulans*, do not coalesce into one; and therefore, if we predicate all respecting the same subject, or if we affirm the same predicate respecting all three, expressing them all by one word, the proposition will not be one, but several.[c]

Aristotle follows this up by a remark interesting to

[a] Aristot. De Interpr. p. 20, a. 31, seq.

[b] Ibid. b. 1-12. That *ἐστὶ λευκὸς ἄνθρωπος*, and *ἐστὶν ἄνθρωπος λευκός*, mean exactly the same, neither more nor less—we might have supposed that Aristotle would have asserted without any proof; that he would have been content *ἀπὸ τῶν πραγμάτων πιστοῦσθαι* (to use the phrase of Ammonius in a portion of the Scholia, p. 121, a. 27). But he prefers to deduce it as a corollary from a general doctrine much less evident than the statement itself; and after all, his deduction is not conclusive, as Waitz has already remarked (ad Organ. I. p. 351).

[c] Ibid. b. 13-22.

note, because we see how much his generalities were intended to bear upon the actual practice of his day, in regard to dialectical disputation. In dialectic exercise, the respondent undertook to defend a thesis, so as to avoid inconsistency between one answer and another, against any questions which might be put by the opponent. Both the form of the questions, and the form of the answers, were determined beforehand. No question was admissible which tended to elicit information or a positive declaration from the respondent. A proposition was tendered to him, and he was required to announce whether he affirmed or denied it. The question might be put in either one of two ways: either by the affirmative alone, or by putting both the affirmative and the negative; either in the form, Is Rhetoric estimable? or in the form, Is Rhetoric estimable or not? To the first form the respondent answered Yes or No: to the second form, he replied by repeating either the affirmative or the negative, as he preferred. But it was not allowable to ask him, *What* is Rhetoric? so as to put him under the necessity of enunciating an explanation of his own.*

Under these canons of dialectic debate, each question was required to be really and truly one, so as to admit of a definite answer in one word. The questioner was either unfair or unskilful, if he wrapped up two questions really distinct in the same word, and thus compelled the respondent either to admit them both, or to deny them both, at once. Against this inconvenience Aristotle seeks to guard, by explaining what are the conditions under which one and the same word does in fact include more than one question. He had before brought to view the case of an equivocal term, which

* See the Scholia of Ammonius, p. 127 Br.

involves such duplication: if *himation* means both horse and man, it will often happen that questions respecting *himation* cannot be truly answered either by Yes or No. He now brings to view a different case in which the like ambiguity is involved. To constitute one proposition, it is essential both that the subject should be one, and that the predicate should be one; either of them indeed may be called by two or three names, but these names must coalesce into one. Thus, *animal, bipes, mansuetum* coalesce into *homo*, and may be employed either as one subject or as one predicate; but *homo, albus, ambulans*, do not coalesce into one; so that if we say, *Kallias est homo, albus, ambulans*, the proposition is not one but three.[a] Accordingly, the respondent cannot make one answer to a question thus complicated. We thus find Aristotle laying down principles—and probably no one had ever attempted to do so before him—for the correct management of that dialectical debate which he analyses so copiously in the Topica.

There are cases (he proceeds to state) in which two predicates may be truly affirmed, taken separately, respecting a given subject, but in which they cannot be truly affirmed, taken together.[b] Kallias is a *currier*, Kallias is *good*—both these propositions may be true; yet the proposition, Kallias is a *good currier*, may not be true. The two predicates are both of them accidental co-inhering in the same individual; but do not fuse themselves into one. So, too, we may truly say, Homer *is a poet*; but we cannot truly say, Homer *is*.[c] We see by this last remark,[d] how distinctly

[a] Aristot. De Interpret. p. 20, b. 2, seq.; Ammonius, Schol. pp. 127-128, a. 21, Br. Compare De Sophist. Elench. p. 169, a. 6-15.

[b] Aristot. De Interp. p. 21, a. 7, seq.

[c] Ibid. p. 21, a. 27.

[d] Compare Schol. (ad Anal. Prior. I.)

Aristotle assigned a double meaning to *est*: first, *per se*, as meaning existence; next, relatively, as performing the function of copula in predication. He tells us, in reply either to Plato or to some other contemporaries, that though we may truly say, *Non-Ens est opinabile*, we cannot truly say *Non-Ens est*, because the real meaning of the first of these propositions is, *Non-Ens est opinabile non esse*.[a]

Aristotle now discusses the so-called MODAL Propositions — the Possible and the Necessary. What is the appropriate form of *Antiphasis* in the case of such propositions, where *possible to be*, or *necessary to be*, is joined to the simple *is*. After a chapter of some length, he declares that the form of *Antiphasis* suitable for the Simple proposition will not suit for a Modal proposition; and that in the latter the sign of negation must be annexed to the modal adjective —*possible, not possible, &c.* His reasoning here is not merely involved, but substantially incorrect; for, in truth, both in one and in the other, the sign of contradictory negation ought to be annexed to the copula.[b] From the *Antiphasis* in Modals Aristotle

p. 146, a. 19-27; also Eudemi Fragment. cxiv. p. 167, ed. Spengel.

Eudemus considered ἔστιν as one term in the proposition. Alexander dissented from this, and regarded it as being only a copula between the terms, *συνθέσεως μηνυτικὸν μόριον τῶν ἐν τῇ προτάσει ὅρων.*

[a] Aristot. De Interpr. p. 21, a. 32; compare Rhetorica, ii. p. 1402, a. 5. The remark of Aristotle seems to bear upon the doctrine laid down by Plato in the Sophistes, p. 258—the close of the long discussion which begins, p. 237, about τὸ μὴ ὄν, as Ammonius tells us in the Scholia, p. 112, b. 5, p. 129, b. 20, Br. Ammonius also alludes to the Republic; as if Plato had delivered the same doctrine in both; which is not the fact. See 'Plato and the Other Companions of Sokrates,' vol. II. ch. xxvii. pp. 447-458, seq.

[b] Aristot. De Interpr. p. 21, a. 34-p. 22, a. 13. See the note of Waitz, ad Organ, I. p. 359, who points out the error of Aristotle, partly indicated by Ammonius in the Scholia.

The rule does not hold in propositions with the sign of universality attached to the subject; but it is at least the same for Modals and Non-modals.

proceeds to legitimate sequences admissible in such propositions, how far any one of them can be inferred from any other.[a] He sets out four tables, each containing four modal determinations interchangeable with each other.

1.	3.
1. Possible (physically) to be.	1. Not possible (physically) to be.
2. Possible (logically) to be.	2. Not possible (logically) to be.
3. Not impossible to be.	3. Impossible to be.
4. Not necessary to be.	4. Necessary not to be.
2.	**4.**
1. Possible (physically) not to be.	1. Not possible (physically) not to be.
2. Possible (logically) not to be.	2. Not possible (logically) not to be.
3. Not impossible not to be.	3. Impossible not to be.
4. Not necessary not to be.	4. Necessary to be.

Aristotle canvasses these tables at some length, and amends them partly by making the fourth case of the second table change place with the fourth of the first.[b] He then discusses whether we can correctly say, that the *necessary to be*, is also *possible to be*. If not, then we might say correctly that the *necessary to be* is *not possible to be*; for one side or other of a legitimate *Antiphasis* may always be truly affirmed. Yet this would be absurd: accordingly we must admit that the *necessary to be* is also *possible to be*. Here, however, we fall seemingly into a different absurdity; for the *possible to be* is also *possible not to be*; and how can we allow that what is *necessary to be* is at the same time *possible not to be?* To escape from such absurdities on both sides, we must distinguish two

[a] Aristot. De Interpr. p. 22, a. 14-b. 28.

[b] Ibid. b. 22, λείπεται τοίνυν, &c.; Ammonius, Schol. p. 133, b. 5-27-36.

Aristotle also intimates (p. 23, a. 18) that it would be better to reverse the order of the propositions in the tables, and to place the Necessary before the Possible. M. Barthélemy St. Hilaire has inserted (in the note to his Translation, p. 197) tables with this reversed order.

modes of the Possible: one, in which the affirmative and negative are alike possible; the other in which the affirmative alone is possible, because it is always and constantly realized. If a man is actually walking, we know that it is possible for him to walk; and even when he is not walking, we say the same, because we believe that he may walk if he chooses. He is not always walking; and in his case, as in all other intermittent realities, the affirmative and the negative are alike possible. But this is not true in the case of necessary, constant, and sempiternal realities. With them there is no alternative possibility, but only the possibility of their doing or continuing to do. The celestial bodies revolve, sempiternally and necessarily; it is therefore possible for them to revolve; but there is no alternative possibility; it is not possible for them not to revolve. Perpetual reality thus includes the unilateral, but not the bilateral, possibility.[a]

Having thus stated that *possible to be*, in this unilateral and equivocal sense but in no other, is a legitimate consequence of *necessary to be*, Aristotle proceeds to lay down a tripartite distinction which surprises us in this place. "It is plain from what has been said that that which *is* by Necessity, is in Act or Actuality; so that if things sempiternal are prior, Actuality is prior to Possibility. Some things, like the first (or celestial) substances, are Actualities without Possibility; others (the generated and perishable substances) which are prior in nature but posterior in generation, are Actualities along with Possibility; while a third class are Possibilities only, and never come into Actuality" (such as the largest number, or the least magnitude).[b]

[a] Aristot. De Interpr. p. 22, b. 29-p. 23, a. 15.

[b] Aristot. De Interpret. p. 23, a. 21-26.

Now the sentence just translated (enunciating a doctrine of Aristotle's First Philosophy rather than of Logic) appears decidedly to contradict what he had said three lines before, viz., that in one certain sense, the *necessary to be* included and implied the *possible to be*; that is, a possibility or potentiality unilateral only, not bilateral; for we are here told that the celestial substance is Actuality without Possibility (or Potentiality), so that the unilateral sense of this last term is disallowed. On the other hand, a third sense of the same term is recognized and distinguished; a sense neither bilateral nor unilateral, but the negation of both. This third sense is hardly intelligible, giving as it does an *impossible* Possible; it seems a self-contradictory description.[a] At best, it can only be understood as a limit in the mathematical sense; a terminus towards which potentiality may come constantly nearer and nearer, but which it can never reach. The first, or bilateral potentiality, is the only sense at once consistent, legitimate, and conformable to ordinary speech. Aristotle himself admits that the second and third are equivocal meanings,[b] departing from the first as the

[a] M. Barthélemy St. Hilaire, in the note to his translation (p. 197) calls it justly — "le possible qui n'est jamais; et qui par cela même, porte en lui une sorte d'impossibilité." It contradicts both the two explanations of *δυνατὸν* which Aristotle had given a few lines before. 1. *δυνατὸν ὅτι ἐνεργεῖ*. 2. *δυνατὸν ὅτι ἐνεργήσειεν ἄν* (p. 23, a. 10).

[b] Aristot. De Interpr. p. 23, a. 5. *τοῦτο μὲν τούτου χάριν εἴρηται, ὅτι οὐ πᾶσα δύναμις τῶν ἀντικειμένων, οὐδ' ὅσαι λέγονται κατὰ τὸ αὐτὸ εἶδος. εἶναι δὲ δυνάμεις ὁμώνυμοί εἰσιν· τὸ γὰρ δυνατὸν οὐχ ἁπλῶς λέγεται, ἀλλὰ τὸ μὲν ὅτι ἀληθὶς ὡς ἐνεργείᾳ ὄν*, &c.

If we read the thirteenth chapter of Analytica Priora I. (p. 32, a. 18-29) we shall see that *τὸ ἐνδεχόμενον* is declared to be *οὐκ ἀναγκαῖον*, and that in the definition of *τὸ ἐνδεχόμενον*, the words *οὗ μὴ ὄντος ἀναγκαίου* are expressly inserted. When *τὸ ἀναγκαῖον* is said *ἐνδέχεσθαι*, this is said only in an *equivocal* sense of *ἐνδέχεσθαι—τὸ γὰρ ἀναγκαῖον ὁμωνύμως ἐνδέχεσθαι λέγομεν*.

On the meaning of *τὸ ἐνδεχόμενον*, translated above, in the table, "possible (logically) to be," and its relation to *τὸ δυνατόν*, see Waitz ad Organ. I. pp. 375-8. Compare Prantl. Gesch. der Logik, I. pp. 166-8.

legitimate meaning; but if equivocal departure to so great an extent were allowed, the term, put to such multifarious service, becomes unfit for accurate philosophical reasoning. And we find this illustrated by the contradiction into which Aristotle himself falls in the course of a few lines. The sentence of First Philosophy (which I translated in the last page) is a correction of the logical statement immediately preceding it, in so far as it suppresses the *necessary* Possible, or the unilateral potentiality. But on the other hand the same sentence introduces a new confusion by its third variety—the *impossible* Potential, departing from all clear and consistent meaning of potentiality, and coinciding only with the explanation of *Non-Ens*, as given by Aristotle elsewhere.[a]

The contrast of Actual and Potential stands so prominently forward in Aristotle's First Philosophy, and is, when correctly understood, so valuable an element in First Philosophy generally, that we cannot be too careful against those misapplications of it into which he himself sometimes falls. The sense of Potentiality, as including the alternative of either affirmative or negative—*may be or may not be*—is quite essential in comprehending the ontological theories of Aristotle; and when he professes to drop the *may not be* and leave only the *may be*, this is not merely an equivocal sense of the word, but an entire renunciation of its genuine sense. In common parlance, indeed, we speak ellip-

[a] Aristot. De Interpr. p. 21, a. 32: *τὸ δὲ μὴ ὄν, ὅτι δοξαστόν, οὐκ ἀληθὲς εἰπεῖν ὄν τι· δόξα γὰρ αὐτοῦ οὐκ ἔστιν ὅτι ἔστιν, ἀλλ' ὅτι οὐκ ἔστιν.* Τὸ *μὴ ὄν* is the true description of that which Aristotle improperly calls *δύναμις ἡ οὐδέποτε ἐνέργειά ἐστιν.*

The triple enumeration given by Aristotle (1. Actuality without Potentiality. 2. Actuality with Potentiality. 3. Potentiality without Actuality) presents a neat symmetry which stands in the place of philosophical exactness.

tically, and say, *It may be*, when we really mean, *It may or may not be.* But the last or negative half, though not expressly announced, is always included in the thought and belief of the speaker and understood by the hearer.[a]

Many logicians, and Sir William Hamilton very emphatically, have considered the Modality of propositions as improper to be included in the province of Logic, and have treated the proceeding of Aristotle in thus including it, as one among several cases in which he had transcended the legitimate boundaries of the science.[b] This criticism, to which I cannot subscribe, is founded upon one peculiar view of the proper definition and limits of Logic. Sir W. Hamilton lays down the limitation peremptorily, and he is warranted in doing this for himself; but it is a question about which there has been great diversity of view among expositors, and he has no right to blame others who enlarge it. My purpose in the present volume is to explain how the subject presented itself to Aristotle. He was the first author that ever attempted to present Logic in a scientific aspect; and it is hardly fair to try him by restrictions emanating from critics much later. Yet, if he is to be tried upon this point, I think the latitude in which he indulges preferable to the restricted doctrine of Sir. W. Hamilton.

In the treatise now before us (De Interpretatione) Aristotle announces his intention to explain the Proposition or Enunciative Speech, the conjunction of a

[a] See Trendelenburg ad Aristot. De Animâ, pp. 303-307.

[b] See pp. 143-5 of the article, "Logic," in Sir William Hamilton's Discussions on Philosophy—a very learned and instructive article, even for those who differ from most of its conclusions. Compare the opposite view, as advocated by M. Barthélemy St. Hilaire, Logique d'Aristote, Préface, pp. lxii.-lxviii.

noun and a verb; as distinguished, first, from its two constituents (noun and verb) separately taken; next, from other modes of speech, also combining the two (precative, interrogative, &c.). All speech (he says), the noun or verb separately, as well as the proposition conjointly, is, in the first instance, a sign of certain mental states common to the speaker with his hearers; and, in the second instance, a sign of certain things or facts, resembling (or correlating with) these mental states.[a] The noun, pronounced separately, and the verb, pronounced separately, are each signs of a certain thought in the speaker's mind, without either truth or falsehood; the Proposition, or conjunction of the two, goes farther and declares truth or falsehood. The words pronounced (he says) follow the thoughts in the mind, expressing an opinion (*i.e.* belief or disbelief) entertained in the mind; the verbal affirmation or negation gives utterance to a mental affirmation or negation—a feeling of belief or disbelief—that something *is*, or that something *is not*.[b] Thus, Aristotle intends to give a theory of the Proposition, leaving other modes of speech to Rhetoric or Poetry:[c] the Proposition he considers under two distinct aspects.

[a] Aristot. De Interpr. p. 16, a. 3-8: *ἔστι μὲν οὖν τὰ ἐν τῇ φωνῇ τῶν ἐν τῇ ψυχῇ παθημάτων σύμβολα —ὧν μέντοι ταῦτα σημεῖα πρώτως, ταὐτὰ πᾶσι παθήματα τῆς ψυχῆς, καὶ ὧν ταῦτα ὁμοιώματα, πράγματα ἤδη ταὐτά.* Ibid., a. 13: *τὰ μὲν οὖν ὀνόματα αὐτὰ καὶ τὰ ῥήματα ἔοικε τῷ ἄνευ συνθέσεως καὶ διαιρέσεως νοήματι —οὔτε γὰρ ψεῦδος οὔτ' ἀληθές πω.* Ib. p. 17, a. 2: *λόγος ἀποφαντικὸς, ἐν ᾧ τὸ ἀληθεύειν ἢ ψεύδεσθαι ὑπάρχει.* Compare p. 20, a. 34.

[b] Aristot. De Interpret. p. 23, a. 32: *τὰ μὲν ἐν τῇ φωνῇ ἀκολουθεῖ τοῖς ἐν τῇ διανοίᾳ, ἐκεῖ δὲ ἐναντία δόξα ἡ τοῦ ἐναντίου,* &c. Ib. p. 24, b. 1: *ὥστε εἴπερ ἐπὶ δόξης οὕτως ἔχει, εἰσὶ δὲ αἱ ἐν τῇ φωνῇ καταφάσεις καὶ ἀποφάσεις σύμβολα τῶν ἐν τῇ ψυχῇ, δῆλον ὅτι καὶ καταφάσει ἐναντία μὲν ἀπόφασις ἡ περὶ τοῦ αὐτοῦ καθόλου,* &c. Ib. p. 17, a. 22: *ἔστι δὲ ἡ ἁπλῆ ἀπόφανσις φωνὴ σημαντικὴ περὶ τοῦ ὑπάρχειν τι ἢ μὴ ὑπάρχειν,* &c.

[c] Aristot. De Interpr. p. 17, a. 5. *οἱ μὲν οὖν ἄλλοι (λόγοι) ἀφείσθωσαν· ῥητορικῆς γὰρ ἢ ποιητικῆς οἰκειοτέρα ἡ σκέψις· ὁ δὲ ἀποφαντικὸς τῆς νῦν θεωρίας.*

In its first or *subjective* aspect, it declares the state of the speaker's mind, as to belief or disbelief. In its second or *objective* aspect, it declares a truth or falsehood correlating with such belief or disbelief, for the information of the hearer. Now the Mode belonging to a proposition of this sort, in virtue of its *form*, is to be *true* or *false*. But there are also other propositions—other varieties of speech enunciative—which differ from the Simple or Assertory Proposition having the form *is* or *is not*, and which have distinct modes belonging to them, besides that of being true or false. Thus we have the Necessary Proposition, declaring that a thing *is* so *by necessity*, that it *must be* so, or *cannot but be* so; again, the Problematical Proposition, enunciating that a thing *may or may not be* so. These two modes attach to the *form* of the proposition, and are quite distinct from those which attach to its *matter* as simply affirmed or denied; as when, instead of saying, John is sick, we say, John is sick *of a fever*, John is *dangerously* sick, with a merely material modification. Such adverbs, modifying the *matter* affirmed or denied, are numerous, and may be diversified almost without limit. But they are not to be placed in the same category with the two just mentioned, which modify the *form* of the proposition, and correspond to a state of mind distinct from simple belief or disbelief, expressed by a simple affirmation or negation.[a] In the case of each of the

[a] Ammonius (in the Scholia on De Interpret. p. 130, a. 16, seq., Brand.) ranks all modal propositions under the same category, and considers the number of them to be, not indeed infinite, but very great. He gives as examples: "The moon changes *fast*; Plato loves Dion *vehemently*." Sir W. Hamilton adopts the same view as Ammonius: "Modes may be conceived without end—all must be admitted, if any are; the line of distinction attempted to be drawn is futile." (Discussions on Phil. ut sup. p. 145.) On the other hand, we learn from Ammonius that most of the Aristo-

two, Aristotle has laid down rules (correct or incorrect) for constructing the legitimate *Antiphasis*, and for determining other propositions equipollent to, or following upon, the propositions given; rules distinct from those applying to the simple affirmation. When

telian interpreters preceding him reckoned the simple proposition τὸ ὑπάρχειν as a modal; and Aristotle himself seems so to mention it (Analytica Priora, I. ii. p. 25, a. 1); besides that he enumerates *true* and *false*, which undoubtedly attach to τὸ ὑπάρχειν, as examples of modes (De Interpret. c. 12, p. 22, a. 13). Ammonius himself protests against this doctrine of the former interpreters.

Mr. John Stuart Mill (System of Logic, Bk. I. ch. iv. s. 2) says:—"A remark of a similar nature may be applied to most of those distinctions among propositions which are said to have reference to their *modality*; as difference of tense or time; the sun *did* rise, *is* rising, *will* rise. . . . The circumstance of time is properly considered as attaching to the copula, which is the sign of predication, and not to the predicate. If the same cannot be said of such modifications as these, Cæsar is *perhaps* dead; it is *possible* that Cæsar is dead; it is only because these fall altogether under another head; being properly assertions not of anything relating to the fact itself, but of the state of our own mind in regard to it; namely, our absence of disbelief of it. Thus, *Cæsar may be dead*, means, *I am not sure that Cæsar is alive*."

I do not know whether Mr. Mill means that the function of the copula is different in these problematical propositions, from what it is in the categorical propositions: I think there is no difference. But his remark that the problematical proposition is an assertion of the state of our minds in regard to the fact, appears to me perfectly just. Only, we ought to add, that this is equally true about the categorical proposition. It is equally true about all the three following propositions:—1. The three angles of a triangle may or may not be equal to two right angles. 2. The three angles of a triangle are equal to two right angles. 3. The three angles of a triangle are necessarily equal to two right angles. In each of these three propositions, an assertion of the state of our minds is involved, and a different state of mind in each. This is the subjective aspect of the proposition; it belongs to the form rather than to the matter, and may be considered as a mode. The commentators preceding Ammonius did so consider it, and said that the categorical proposition had its mode as well as the others. Ammonius differed from them, treating the categorical as having no mode—as the standard unit or point of departure.

The propositions now known as Hypothetical and Disjunctive, which may also be regarded as in a certain sense Modals, are not expressly considered by Aristotle. In the Anal. Prior. I. xliv. p. 50, a. 16-38, he adverts to hypothetical syllogisms, and intimates his intention of discussing them more at length: but this intention has not been executed, in the works that we possess.

we say of anything, *It may be or may not be*, we enunciate here only one proposition, not two; we declare a state of mind which is neither belief nor disbelief, as in the case of the Simple Proposition, but something wavering between the two; yet which is nevertheless frequent, familiar to every one, and useful to be made known by a special form of proposition adapted to it—the Problematical. On the other hand, when we say, *It is by necessity—must be—cannot but be* —we declare our belief, and something more besides; we declare that the supposition of the opposite of what we believe, would involve a contradiction—would contradict some definition or axiom to which we have already sworn adherence. This again is a state of mind known, distinguishable, and the same in all, subjectively; though as to the objective correlate—what constitutes the Necessary, several different opinions have been entertained.

In every complete theory of enunciative speech, these modal propositions deserve to be separately explained, both in their substantive meaning and in their relation to other propositions. Their characteristic property as Modals belongs to *form* rather than to *matter*; and Aristotle ought not to be considered as unphilosophical for introducing them into the Organon, even if we adopt the restricted view of Logic taken by Sir W. Hamilton, that it takes no cognizance of the matter of propositions, but only of their form. But though I dissent from Hamilton's criticisms on this point, I do not concur with the opposing critics who think that Aristotle has handled the Modal Propositions in a satisfactory manner. On the contrary, I think that the equivocal sense which he assigns to the Potential or Possible, and his inconsistency in sometimes admitting, sometimes denying, a Potential that is always

actual, and a Potential that is never actual — are serious impediments to any consistent Logic. The Problematical Proposition does not admit of being cut in half; and if we are to recognize a *necessary* Possible, or an *impossible* Possible, we ought to find different phrases by which to designate them.

We must observe that the distinction of Problematical and Necessary Propositions corresponds, in the mind of Aristotle, to that capital and characteristic doctrine of his Ontology and Physics, already touched on in this chapter. He thought, as we have seen, that in the vast circumferential region of the Kosmos, from the outer sidereal sphere down to the lunar sphere, celestial substance was a necessary existence and energy, sempiternal and uniform in its rotations and influence; and that through its beneficent influence, pervading the concavity between the lunar sphere and the terrestrial centre (which included the four elements with their compounds) there prevailed a regularizing tendency called Nature; modified, however, and partly counteracted by independent and irregular forces called Spontaneity and Chance, essentially unknowable and unpredictable. The irregular sequences thus named by Aristotle were the objective correlate of the Problematical Proposition in Logic. In these sublunary sequences, as to future time, *may or may not* was all that could be attained, even by the highest knowledge; certainty, either of affirmation or negation, was out of the question. On the other hand, the necessary and uniform energies of the celestial substance, formed the objective correlate of the Necessary Proposition in Logic; this substance was not merely an existence, but an existence necessary and unchangeable. I shall say more on this when I come to treat of Aristotle as a kosmical and physical philosopher; at

present it is enough to remark that he considers the Problematical Proposition in Logic to be not purely subjective, as an expression of the speaker's ignorance, but something more, namely, to correlate with an objective essentially unknowable to all.

The last paragraph of the treatise De Interpretatione discusses the question of Contraries and Contradictories, and makes out that the greatest breadth of opposition is that between a proposition and its contradictory (Kallias is just—Kallias is not just), not that between a proposition and what is called its contrary (Kallias is just—Kallias is unjust); therefore, that according to the definition of contrary, the true contrary of a proposition is its contradictory.[a] This paragraph is not connected with that which precedes; moreover, both the reasoning and the conclusion differ from what we read as well in this treatise as in other portions of Aristotle. Accordingly, Ammonius in the Scholia, while informing us that Porphyry had declined to include it in his commentary, intimates also his own belief that it is not genuine, but the work of another hand. At best (Ammonius thinks), if we must consider it as the work of Aristotle, it has been composed by him only as a dialectical exercise, to debate an unsettled question.[b] I think the latter hypothesis not improbable. The paragraph has certainly reference to discussions which we do not know, and it may have been composed when Aristotle had not fully made up his mind on the distinction between Contrary and Contradictory. Considering the difficult problems that he undertook to solve, we may be sure that he must have

[a] Aristot. De Interpr. p. 23, a. 27, seq.

[b] Scholia ad Arist. pp. 135-139, Br. *γυμνάσαι μόνον βουληθέντος τοὺς ἐντυγχάνοντας πρὸς τὴν ἐπίκρισιν τῶν πιθανῶς μὲν οὐ μέντοι ἀληθῶς λεγομένων λόγων*, &c. (p. 135, b. 15; also p. 136, a. 42.)

written down several trains of thought merely preliminary and tentative. Moreover, we know that he had composed a distinct treatise 'De Oppositis,'[a] which is unfortunately lost, but in which he must have included this very topic—the distinction between Contrary and Contradictory.

Whatever may have been the real origin and purpose of this last paragraph, I think it unsuitable as a portion of the treatise De Interpretatione. It nullifies, or at least overclouds, one of the best parts of that treatise, the clear determination of *Antiphasis* and its consequences.

If, now, we compare the theory of the Proposition as given by Aristotle in this treatise, with that which we read in the Sophistes of Plato, we shall find Plato already conceiving the proposition as composed indispensably of noun and verb, and as being either affirmative or negative, for both of which he indicates the technical terms.[b] He has no technical term for either subject or predicate; but he conceives the proposition as belonging to its subject:[c] we may be mistaken in the predicates, but we are not mistaken in the subject. Aristotle enlarges and improves upon this theory. He not only has a technical term for affirmation and negation, and for negative noun and verb, but also for subject and predicate; again, for the mode of signification belonging to noun and verb, each separately, as distinguished from the mode of signification belong-

[a] Scholia ad Categorias, p. 83, a. 17-19, b. 10, p. 84, a. 29, p. 86, b. 42, p. 88, a. 30. It seems much referred to by Simplikius, who tells us that the Stoics adopted most of its principles (p. 83, a. 21, b. 7).

[b] Plato, Sophistes, pp. 261-262. *φάσιν καὶ ἀπόφασιν.*—ib. p. 263 E. In the so-called Platonic 'Definitions,' we read *ἐν καταφάσει καὶ ἀποφάσει* (p. 413 C.); but these are probably after Aristotle's time. In another of these Definitions (413 D.) we read *ἀπόφασις*, where the word ought to be *ἀπόφανσις*.

[c] Plato, Sophist. p. 263 A-C.

ing to them conjointly, when brought together in a proposition. He follows Plato in insisting upon the characteristic feature of the proposition—aptitude for being true or false; but he gives an ampler definition of it, and he introduces the novel and important distribution of propositions according to the quantity of the subject. Until this last distribution had been made, it was impossible to appreciate the true value and bearing of each *Antiphasis*, and the correct language for expressing it, so as to say neither more nor less. We see, by reading the Sophistes, that Plato did not conceive the *Antiphasis* correctly, as distinguished from Contrariety on the one hand, and from mere Difference on the other. He saw that the negative of any proposition does not affirm the contrary of its affirmative; but he knew no other alternative except to say, that it affirms only something different from the affirmative. His theory in the Sophistes recognizes nothing but affirmative propositions, with the predicate of contrariety on one hand, or of difference on the other;[a] he ignores, or jumps over, the intermediate station of propositions affirming nothing at all, but simply denying a pre-understood affirmative. There were other contemporaries, Antisthenes among them, who declared contradiction to be an impossibility;[b] an opinion coinciding at bottom with what I have just

[a] Plato, Sophistes, p. 257, B: Οὐκ ἄρ', *ἐναντίον ὅταν ἀπόφασις λέγηται σημαίνειν, συγχωρησόμεθα, τοσοῦτον δὲ μόνον, ὅτι τῶν ἄλλων τι μηνύει τὸ μὴ καὶ τὸ οὔ προτιθέμενα τῶν ἐπιόντων ὀνομάτων, μᾶλλον δὲ τῶν πραγμάτων, περὶ ἅττ' ἂν κέηται τὰ ἐπιφθεγγόμενα ὕστερον τῆς ἀποφάσεως ὀνόματα.*

The term *ἀντίφασις*, and its derivative *ἀντιφατικῶς*, are not recognized in the Platonic Lexicon. Compare the same dialogue, Sophistes, p. 263; also Euthydêmus, p. 298, A. Plato does not seem to take account of negative propositions as such. See 'Plato and the Other Companions of Sokrates,' vol. II. ch. xxvii. pp. 446-455.

[b] Aristot. Topica, I. xi. p. 104, b. 20; Metaphys. Δ. p. 1024, b. 32; Analytic. Poster. I. xxv. p. 86, b. 34.

cited from Plato himself. We see, in the Theætêtus, the Euthydêmus, the Sophistes, and elsewhere, how great was the difficulty felt by philosophers of that age to find a proper *locus standi* for false propositions, so as to prove them theoretically possible, to assign a legitimate function for the negative, and to escape from the interdict of Parmenides, who eliminated *Non-Ens* as unmeaning and incogitable. Even after the death of Aristotle, the acute disputation of Stilpon suggested many problems, but yielded few solutions; and Menedêmus went so far as to disallow negative propositions altogether.[a]

Such being the conditions under which philosophers debated in the age of Aristotle, we can appreciate the full value of a positive theory of propositions such as that which we read in his treatise De Interpretatione. It is, so far as we know, the first positive theory thereof that was ever set out; the first attempt to classify propositions in such a manner that a legitimate *Antiphasis* could be assigned to each; the first declaration that to each affirmative proposition there belonged one appropriate negative, and to each negative proposition one appropriate counter-affirmative, and one only; the earliest effort to construct a theory for this purpose, such as to hold ground against all the puzzling questions of acute disputants.[b] The clear determination of the *Antiphasis* in each case—the distinction of Contradictory

[a] Diogen. Laert. ii. 134-135. See the long discussion in the Platonic Theætêtus (pp. 187-196), in which Sokrates in vain endeavours to produce some theory whereby ψευδὴς δόξα may be rendered possible. Hobbes, also, in his Computation or Logic (De Corp. c. iii. § 6), followed by Destutt Tracy, disallows the negative proposition *per se*, and treats it as a clumsy disguise of the affirmative *ἐκ μεταθέσεως*, to use the phrase of Theophrastus. Mr. John Stuart Mill has justly criticized this part of Hobbes's theory (System of Logic, Book I. ch. iv. § 2).

[b] Aristot. De Interpr. p. 17, a. 36: *πρὸς τὰς σοφιστικὰς ἐνοχλήσεις.*

antithesis from Contrary antithesis between propositions—this was an important logical doctrine never advanced before Aristotle; and the importance of it becomes manifest when we read the arguments of Plato and Antisthenes, the former overleaping and ignoring the contradictory opposition, the latter maintaining that it was a process theoretically indefensible. But in order that these two modes of antithesis should be clearly contrasted, each with its proper characteristic, it was requisite that the distinction of quantity between different propositions should also be brought to view, and considered in conjunction with the distinction of quality. Until this was done, the Maxim of Contradiction, denied by some, could not be shown in its true force or with its proper limits. Now, we find it done,* for the first time, in the treatise before us. Here the Contradictory antithesis (opposition both in quantity and quality) in which one proposition must be true and the other false, is contrasted with the Contrary (propositions opposite in quality, but both of them universal). Aristotle's terminology is not in all respects fully developed; in regard, especially, to the quantity of propositions it is less advanced than in his own later treatises; but from the theory of the De Interpretatione all the distinctions current among later logicians, take their rise.

The distinction of Contradictory and Contrary is fundamental in ratiocinative Logic, and lies at the

* We see, from the argument in the Metaphysica of Aristotle, that there were persons in his day who denied or refused to admit the Maxim of Contradiction; and who held that contradictory propositions might both be true or both false (Aristot. Metaph. Γ. p. 1006, a. 1; p. 1009, a. 24). He employs several pages in confuting them.

See the Antinomies in the Platonic Parmenides (pp. 154-155), some of which destroy or set aside the Maxim of Contradiction ('Plato and the Other Companions of Sokrates,' vol. II. ch. xxv. p. 306).

bottom of the syllogistic theory as delivered in the Analytica Priora. The precision with which Aristotle designates the Universal proposition with its exact contradictory antithesis, is remarkable in his day. Some, however, of his observations respecting the place and functions of the negative particle (*οὐ*), must be understood with reference to the variable order of words in a Greek or Latin sentence; for instance, the distinction between *Kallias non est justus* and *Kallias est non justus* does not suggest itself to one speaking English or French.* Moreover, the Aristotelian theory of the Proposition is encumbered with various unnecessary subtleties; and the introduction of the Modals (though they belong, in my opinion, legitimately to a complete logical theory) renders the doctrine so intricate and complicated, that a judicious teacher will

* The diagram or parallelogram of logical antithesis, which is said to have begun with Apuleius, and to have been transmitted through Boethius and the Schoolmen to modern times (Ueberweg, System der Logik, sect. 72, p. 174) is as follows:—

A. Omnis homo est justus. E. Nullus homo est justus.
I. Aliquis homo est justus. O. Aliquis homo non est justus.

But the parallelogram set out by Aristotle in the treatise De Interpretatione, or at least in the Analytica Priora, is different, and intended for a different purpose. He puts it thus:—

1. Omnis homo est justus 2. Non omnis homo est justus.
4. Non omnis homo est non justus 3. Omnis homo est non justus.

Here Proposition (1) is an affirmative, of which (2) is the direct and appropriate negative: also Proposition (3) is an affirmative (Aristotle so considers it), of which (4) is the direct and appropriate negative. The great aim of Aristotle is to mark out clearly what is the appropriate negative or Ἀπόφασις to each Κατάφασις (*μία ἀπόφασις μιᾶς καταφάσεως*, p. 17, b. 38), making up together the pair which he calls Ἀντίφασις, standing in Contradictory Opposition; and to distinguish this appropriate negative from another proposition which comprises the particle of negation, but which is really a new affirmative.

The true negatives of *homo est justus*—*Omnis homo est justus* are, *Homo non est justus*—*Non omnis homo est justus*. If you say, *Homo est non justus*—*Omnis homo est non justus*, these are not negative propositions, but new affirmatives (*ἐκ μεταθέσεως* in the language of Theophrastus).

prefer, in explaining the subject, to leave them for second or ulterior study, when the simpler relations between categorical propositions have been made evident and familiar. The force of this remark will be felt more when we go through the Analytica Priora. The two principal relations to be considered in the theory of Propositions—Opposition and Equipollence—would have come out far more clearly in the treatise De Interpretatione, if the discussion of the Modals had been reserved for a separate chapter.

CHAPTER V.

ANALYTICA PRIORA I.

REVIEWING the treatise De Interpretatione, we have followed Aristotle in his first attempt to define what a Proposition is, to point out its constituent elements, and to specify some of its leading varieties. The characteristic feature of the Proposition he stated to be—That it declares, in the first instance, the mental state of the speaker as to belief or disbelief, and, in its ulterior or final bearing, a state of facts to which such belief or disbelief corresponds. It is thus significant of truth or falsehood; and this is its logical character (belonging to Analytic and Dialectic), as distinguished from its rhetorical character, with other aspects besides. Aristotle farther indicated the two principal discriminative attributes of propositions as logically regarded, passing under the names of quantity and quality. He took great pains, in regard to the quality, to explain what was the special negative proposition in true contradictory antithesis to each affirmative. He stated and enforced the important separation of contradictory propositions from contrary; and he even parted off (which the Greek and Latin languages admit, though the French and English will hardly do so) the true negative from the indeterminate affirmative. He touched also upon equipollent propositions, though he did not go far into them. Thus commenced with Aristotle the systematic study of propositions, classified according to their meaning and their various interdependences with each other as to truth

and falsehood—their mutual consistency or incompatibility. Men, who had long been talking good Greek fluently and familiarly, were taught to reflect upon the conjunctions of words that they habitually employed, and to pay heed to the conditions of correct speech in reference to its primary purpose of affirmation and denial, for the interchange of beliefs and disbeliefs, the communication of truth, and the rectification of falsehood. To many of Aristotle's contemporaries this first attempt to theorize upon the forms of locution familiar to every one would probably appear hardly less strange than the interrogative dialectic of Sokrates, when he declared himself not to know what was meant by justice, virtue, piety, temperance, government, &c.; when he astonished his hearers by asking them to rescue him from this state of ignorance, and to communicate to him some portion of their supposed plenitude of knowledge.

Aristotle tells us expressly that the theory of the Syllogism, both demonstrative and dialectic, on which we are now about to enter, was his own work altogether and from the beginning; that no one had ever attempted it before; that he therefore found no basis to work upon, but was obliged to elaborate his own theory, from the very rudiments, by long and laborious application. In this point of view, he contrasts Logic pointedly with Rhetoric, on which there had been a series of writers and teachers, each profiting by the labours of his predecessors.[a] There is no reason to contest the claim to originality here advanced by Aristotle. He was the

[a] See the remarkable passage at the close of the Sophistici Elenchi, p. 183, b. 34-p. 184, b. 9: *ταύτης δὲ τῆς πραγματείας οὐ τὸ μὲν ἦν τὸ δὲ οὐκ ἦν προεξειργασμένον, ἀλλ' οὐδὲν παντελῶς ὑπῆρχε—καὶ περὶ μὲν τῶν ῥητορικῶν ὑπῆρχε πολλὰ καὶ παλαιὰ τὰ λεγόμενα, περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἴχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἢ τριβῇ ζητοῦντες πολὺν χρόνον ἐπονοῦμεν.*

first who endeavoured, by careful study and multiplied comparison of propositions, to elicit general truths respecting their ratiocinative interdependence, and to found thereupon precepts for regulating the conduct of demonstration and dialectic.*

He begins the Analytica Priora by setting forth his

* Sir Wm. Hamilton, Lectures on Logic, Lect. v. pp. 87-91, vol. III. :— "The principles of Contradiction and Excluded Middle can both be traced back to Plato, by whom they were enounced and frequently applied; though it was not till long after, that either of them obtained a distinctive appellation. To take the principle of Contradiction first. This law Plato frequently employs, but the most remarkable passages are found in the Phædo (p. 103), in the Sophista (p. 252), and in the Republic (iv. 436, vii. 525). This law was however more distinctively and emphatically enounced by Aristotle. Following Aristotle, the Peripatetics established this law as the highest principle of knowledge. From the Greek Aristotelians it obtained the name by which it has subsequently been denominated, the *principle*, or *law*, or *axiom*, of *Contradiction* (*ἀξίωμα τῆς ἀντιφάσεως*). The law of Excluded Middle between two contradictories remounts, as I have said, also to Plato; though the Second Alcibiades, in which it is most clearly expressed (p. 139; also Sophista, p. 250) must be admitted to be spurious. This law, though universally recognized as a principle in the Greek Peripatetic school, and in the schools of the middle ages, only received the distinctive appellation by which it is now known at a comparatively modern date."

The passages of Plato, to which Sir W. Hamilton here refers, will not be found to bear out his assertion that Plato "enounced and frequently applied the principles of Contradiction and Excluded Middle." These two principles are both of them enunciated, denominated, and distinctly explained by Aristotle, but by no one before him, as far as our knowledge extends. The conception of the two maxims, in their generality, depends upon the clear distinction between Contradictory Opposition and Contrary Opposition; which is fully brought out by Aristotle, but not adverted to, or at least never broadly and generally set forth, by Plato. Indeed it is remarkable that the word *Ἀντίφασις*, the technical term for Contradiction, nevers occurs in Plato; at least it is not recognized in the *Lexicon Platonicum*. Aristotle puts it in the foreground of his logical exposition; for, without it, he could not have explained what he meant by Contradictory Opposition. See Categoriæ pp. 13-14, and elsewhere in the treatise De Interpretatione and in the Metaphysica. Respecting the idea of the Negative as put forth by Plato in the Sophistes (not coinciding either with Contradictory Opposition or with Contrary Opposition), see 'Plato and the Other Companions of Sokrates,' vol. II. ch. xxvii. pp. 449-459. I have remarked in that chapter, and the reader ought to recollect, that the philosophical views set out by Plato in the Sophistes differ on many points from what we read in other Platonic dialogues.

general purpose, and defining his principal terms and phrases. His manner is one of geometrical plainness and strictness. It may perhaps have been common to him with various contemporary geometers, whose works are now lost; but it presents an entire novelty in Grecian philosophy and literature. It departed not merely from the manner of the rhetoricians and the physical philosophers (as far as we know them, not excluding even Demokritus), but also from Sokrates and the Sokratic school. For though Sokrates and Plato were perpetually calling for definitions, and did much to make others feel the want of such, they neither of them evinced aptitude or readiness to supply the want. The new manner of Aristotle is adapted to an undertaking which he himself describes as original, in which he has no predecessors, and is compelled to dig his own foundations. It is essentially didactic and expository, and contrasts strikingly with the mixture of dramatic liveliness and dialectical subtlety which we find in Plato.

The terminology of Aristotle in the Analytica is to a certain extent different from that in the treatise De Interpretatione. The Enunciation (Ἀπόφανσις) appears under the new name of Πρότασις, *Proposition* (in the literal sense) or *Premiss*; while, instead of Noun and Verb, we have the word *Term* (Ὅρος), applied alike both to Subject and to Predicate.* We pass now

* Aristot. Analyt. Prior. I. i. p. 24, b. 16: *ὅρον δὲ καλῶ εἰς ὃν διαλύεται ἡ πρότασις, οἷον τό τε κατηγορούμενον καὶ τὸ καθ' οὗ κατηγορεῖται*, &c.

Ὅρος—*Terminus*—seems to have been a technical word first employed by Aristotle himself to designate subject and predicate as the *extremes* of a proposition, which latter he conceives as the *interval* between the *termini*—*διάστημα*. (Analyt. Prior. I. xv. p. 35, a. 12. *στερητικῶν διαστημάτων*, &c. See Alexander, Schol. pp. 145-146.).

In the Topica Aristotle employs ὅρος in a very different sense—*λόγος ὁ τὸ τί ἦν εἶναι σημαίνων* (Topic. I. v. p. 101, b. 39)—hardly distinguished from *ὁρισμός*. The Scholia take little notice of this remarkable variation of meaning, as between two treatises of the Organon so intimately connected (pp. 256-257, Br.).

from the region of *declared* truth, into that of *inferential* or *reasoned* truth. We find the proposition looked at, not merely as communicating truth in itself, but as generating and helping to guarantee certain ulterior propositions, which communicate something additional or different. The primary purpose of the Analytica is announced to be, to treat of Demonstration and demonstrative Science; but the secondary purpose, running parallel with it and serving as illustrative counterpart, is, to treat also of Dialectic; both of them[a] being applications of the inferential or ratiocinative process, the theory of which Aristotle intends to unfold.

The three treatises—1, Analytica Priora, 2, Analytica Posteriora, 3, Topica with Sophistici Elenchi—thus belong all to one general scheme; to the theory of the Syllogism, with its distinct applications, first, to demonstrative or didactic science, and, next, to dialectical debate. The scheme is plainly announced at the commencement of the Analytica Priora; which treatise discusses the Syllogism generally, while the Analytica Posteriora deals with Demonstration, and the Topica with Dialectic. The first chapter of the Analytica Priora and the last chapter of the Sophistici Elenchi (closing the Topica), form a preface and a conclusion to the whole. The exposition of the Syllogism, Aristotle distinctly announces, precedes that of Demonstration (and for the same reason also precedes that of Dialectic), because it is more general: every demonstration is a sort of syllogism, but every syllogism is not a demonstration.[b]

As a foundation for the syllogistic theory, propositions are classified according to their quantity (more formally than in the treatise De Interpretatione) into

[a] Analyt. Prior. I. i. p. 24, a. 25. [b] Ibid. I. iv. p. 25, b. 30.

Universal, Particular, and Indefinite or Indeterminate;[a] Aristotle does not recognize the Singular Proposition as a distinct variety. In regard to the Universal Proposition, he introduces a different phraseology according as it is looked at from the side of the Subject, or from that of the Predicate. The Subject is, or is not, in the whole Predicate; the Predicate is affirmed or denied respecting all or every one of the Subject.[b] The minor term of the Syllogism (in the first mode of the first figure) is declared to be in the whole middle term; the major is declared to belong to, or to be predicable of, all and every the middle term. Aristotle says that the two are the same; we ought rather to say that each is the concomitant and correlate of the other, though his phraseology is such as to obscure the correlation.

The definition given of a Syllogism is very clear and remarkable:—"It is a speech in which, some positions having been laid down, something different from these positions follows as a necessary consequence from their being laid down." In a *perfect* Syllogism nothing additional is required to make the necessity of the consequence obvious as well as complete. But there are also *imperfect* Syllogisms, in which such necessity, though equally complete, is not so obviously conveyed in the premisses, but requires some change to be effected in the position of the terms in order to render it conspicuous.[c]

[a] Arist. Anal. Prior. I. i. p. 24, a. 17. The Particular (*ἐν μέρει*), here for the first time expressly distinguished by Aristotle, is thus defined:—*ἐν μέρει δὲ τὸ τινὶ ἢ μὴ τινὶ ἢ μὴ παντὶ ὑπάρχειν.*

[b] Ibid. b. 26: *τὸ δ' ἐν ὅλῳ εἶναι ἕτερον ἑτέρῳ, καὶ τὸ κατὰ παντὸς κατηγορεῖσθαι θατέρου θάτερον, ταὐτόν ἐστι—ταὐτὸν*, i. e. *ἀντεστραμμένως*, as Waitz remarks in note. Julius Pacius says:—"Idem re, sed ratione differunt ut ascensus et descensus; nam subjectum dicitur esse vel non esse in toto attributo, quia attributum dicitur de omni vel de nullo subjecto" (p. 128).

[c] Aristot. Anal. Prior. I. i. p. 24, b 18-26. The same, with a little difference of wording, at the com-

The term Syllogism has acquired, through the influence of Aristotle, a meaning so definite and technical, that we do not easily conceive it in any other meaning. But in Plato and other contemporaries it bears a much wider sense, being equivalent to reasoning generally, to the process of comparison, abstraction, generalization.[a] It was Aristotle who consecrated the word, so as to mean exclusively the reasoning embodied in propositions of definite form and number. Having already analysed propositions separately taken, and discriminated them into various classes according to their constituent elements, he now proceeds to consider propositions in combination. Two propositions, if properly framed, will conduct to a third, different from themselves, but which will be necessarily true if they are true. Aristotle calls the three together a Syllogism.[b] He undertakes to show how it must be framed in order that its conclusion shall be necessarily true, if the premisses are true. He furnishes schemes whereby the cast and arrangement of premisses, proper for attaining truth, may be recognized; together with the nature of the conclusion, warrantable under each arrangement.

In the Analytica Priora, we find ourselves involved, from and after the second chapter, in the distinction of Modal propositions, the necessary and the possible. The rules respecting the simple Assertory propositions

mencement of Topica, p. 100, a. 25. Compare also Analyt. Poster. I. x. p. 76, b. 38: *ὅσων ὄντων τῷ ἐκεῖνα εἶναι γίνεται τὸ συμπέρασμα.*

[a] See especially Plato, Theætet. p. 186, B-D., where *ὁ συλλογισμὸς* and *τὰ ἀναλογίσματα* are equivalents.

[b] Julius Pacius (ad Analyt. Prior. I. i.) says that it is a mistake on the part of most logicians to treat the Syllogism as including three propositions (ut vulgus logicorum putat). He considers the premisses alone as constituting the Syllogism; the conclusion is not a part thereof, but something distinct and superadded. It appears to me that the *vulgus logicorum* are here in the right.

are thus, even from the beginning, given in conjunction and contrast with those respecting the Modals. This is one among many causes of the difficulty and obscurity with which the treatise is beset. Theophrastus and Eudemus seem also to have followed their master by giving prominence to the Modals:* recent expositors avoid the difficulty, some by omitting them altogether, others by deferring them until the simple assertory propositions have been first made clear. I shall follow the example of these last; but it deserves to be kept in mind, as illustrating Aristotle's point of view, that he regards the Modals as principal varieties of the proposition, co-ordinate in logical position with the simple assertory.

Before entering on combinations of propositions, Aristotle begins by shewing what can be done with single propositions, in view to the investigation or proving of truth. A single proposition may be *converted*; that is, its subject and predicate may be made to change places. If a proposition be true, will it be true when thus converted, or (in other words) will its converse be true? If false, will its converse be false? If this be not always the case, what are the conditions and limits under which (assuming the proposition to be true) the process of conversion leads to assured truth, in each variety of propositions, affirmative or negative, universal or particular? As far as we know, Aristotle was the first person that ever put to himself this question; though the answer to it is indispensable to any theory of the process of proving or disproving. He answers it before he enters upon the Syllogism.

The rules which he lays down on the subject have

* Eudemi Fragmenta, cii.-ciii. p. 145, ed. Spengel.

passed into all logical treatises. They are now familiar; and readers are apt to fancy that there never was any novelty in them—that every one knows them without being told. Such fancy would be illusory. These rules are very far from being self-evident, any more than the maxims of Contradiction and of the Excluded Middle. Not one of the rules could have been laid down with its proper limits, until the discrimination of propositions, both as to quality (affirmative or negative), and as to quantity (universal or particular), had been put prominently forward and appreciated in all its bearings. The rule for trustworthy conversion is different for each variety of propositions. The Universal Negative may be converted simply; that is, the predicate may become subject, and the subject may become predicate—the proposition being true after conversion, if it was true before. But the Universal Affirmative cannot be thus converted simply. It admits of conversion only in the manner called by logicians *per accidens*: if the predicate change places with the subject, we cannot be sure that the proposition thus changed will be true, unless the new subject be lowered in quantity from universal to particular; *e.g.* the proposition, All men are animals, has for its legitimate converse not, *All* animals are men, but only, *Some* animals are men. The Particular Affirmative may be converted simply: if it be true that Some animals are men, it will also be true that Some men are animals. But, lastly, if the true proposition to be converted be a Particular Negative, it cannot be converted at all, so as to make sure that the converse will be true also.*

Here then are four separate rules laid down, one for

* Aristot. Analyt. Prior. I. ii. p. 25, a. 1-26.

each variety of propositions. The rules for the second and third variety are proved by the rule for the first (the Universal Negative), which is thus the basis of all. But how does Aristotle prove the rule for the Universal Negative itself? He proceeds as follows: "If A cannot be predicated of any one among the B's, neither can B be predicated of any one among the A's. For if it could be predicated of any one among them (say C), the proposition that A cannot be predicated of any B would not be true; since C is one among the B's."* Here we have a proof given which is no proof at all. If I disbelieved or doubted the proposition to be proved, I should equally disbelieve or doubt the proposition given to prove it. The proof only becomes valid, when you add a farther assumption which Aristotle has not distinctly enunciated, viz.: That if some A (*e.g.* C) is B, then some B must also be A; which would be contrary to the fundamental supposition. But this farther assumption cannot be granted here, because it would imply that we already know the rule respecting the convertibility of Particular Affirmatives, viz., that they admit of being converted simply. Now the rule about Particular Affirmatives is afterwards itself proved by help of the preceding demonstration respecting the Universal Nega-

* Aristot. Analyt. Prior. I. ii. p. 25, a. 15: *εἰ οὖν μηδενὶ τῶν* B *τὸ* A *ὑπάρχει, οὐδὲ τῶν* A *οὐδενὶ ὑπάρξει τὸ* B. *εἰ γάρ τινι, οἷον τῷ* Γ, *οὐκ ἀληθὲς ἔσται τὸ μηδενὶ τῶν* B *τὸ* A *ὑπάρχειν· τὸ γὰρ* Γ *τῶν* B *τί ἐστιν.*

Julius Pacius (p. 129) proves the Universal Negative to be convertible *simpliciter*, by a *Reductio ad Absurdum* cast into a syllogism in the First figure. But it is surely unphilosophical to employ the rules of Syllogism as a means of proving the legitimacy of Conversion, seeing that we are forced to assume conversion in our process for distinguishing valid from invalid syllogisms. Moreover the *Reductio ad Absurdum* assumes the two fundamental Maxims of Contradiction and Excluded Middle, though these are less obvious, and stand more in need of proof than the simple conversion of the Universal Negative, the point that they are brought to establish.

tive. As the proof stands, therefore, Aristotle demonstrates each of these by means of the other; which is not admissible.[a]

Even the friends and companions of Aristotle were not satisfied with his manner of establishing this fundamental rule as to the conversion of propositions. Eudêmus is said to have given a different proof; and Theophrastus assumed as self-evident, without any proof, that the Universal Negative might always be converted simply.[b] It appears to me that no other or better evidence of it can be offered, than the trial upon particular cases, that is to say, Induction.[c] Nothing is gained by dividing (as Aristotle does) the whole A into parts, one of which is C; nor can I agree with Theophrastus in thinking that every learner would assent to it at first hearing, especially at a time when no universal maxims respecting the logical value of propositions had ever been proclaimed. Still less would a Megaric dialectician, if he had never heard the maxim before, be satisfied to stand upon an alleged *à priori* necessity without asking for evidence. Now there is no other evidence except by exemplifying the formula,

[a] Waitz, in his note (p. 374), endeavours, but I think without success, to show that Aristotle's proof is not open to the criticism here advanced. He admits that it is obscurely indicated, but the amplification of it given by himself still remains exposed to the same objection.

[b] See the Scholia of Alexander on this passage, p. 148, a. 30-45, Brandis; Eudemi Fragm. ci.-cv. pp. 145-149, ed. Spengel.

[c] We find Aristotle declaring in Topica, II. viii. p. 113, b. 15, that in converting a true Universal Affirmative proposition, the negative of the Subject of the convertend is always true of the negative of the Predicate of the convertend; *e. g.* If every man is an animal, every thing which is not an animal is not a man. This is to be assumed (he says) upon the evidence of Induction—uncontradicted iteration of particular cases, extended to all cases universally—*λαμβάνειν δ' ἐξ ἐπαγωγῆς, οἷον εἰ ὁ ἄνθρωπος ζῷον, τὸ μὴ ζῷον οὐκ ἄνθρωπος· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων. ἐπὶ πάντων οὖν τὸ τοιοῦτον ἀξιωτέον.*

The rule for the simple conversion of the Universal Negative rests upon the same evidence of Induction, never contradicted.

No A is B, in separate propositions already known to the learner as true or false, and by challenging him to produce any one case, in which, when it is true to say No A is B, it is not equally true to say, No B is A; the universality of the maxim being liable to be overthrown by any one contradictory instance.[a] If this proof does not convince him, no better can be produced. In a short time, doubtless, he will acquiesce in the general formula at first hearing, and he may even come to regard it as self-evident. It will recall to his memory an aggregate of separate cases each individually forgotten, summing up their united effect under the same aspect, and thus impressing upon him the general truth as if it were not only authoritative but self-authorized.

Aristotle passes next to Affirmatives, both Universal and Particular. First, if A can be predicated of all B, then B can be predicated of *some* A; for if B cannot be predicated of any A, then (by the rule for the Uni-

[a] Dr. Wallis, in one of his acute controversial treatises against Hobbes, remarks upon this as the process pursued by Euclid in his demonstrations:—"You tell us next that an Induction, without enumeration of all the particulars, is not sufficient to infer a conclusion. Yes, Sir, if after the enumeration of some particulars, there comes a general clause, *and the like in other cases* (as here it doth), this may pass for a proofe till there be a possibility of giving some instance to the contrary, which here you will never be able to doe. And if such an Induction may not pass for proofe, there is never a propo-sition in Euclid demonstrated. For all along he takes no other course, or at least grounds his Demonstrations on Propositions no otherwise demonstrated. As, for instance, he proposeth it in general (i. c. 1.)—*To make an equilateral triangle on a line given.* And then he shows you how to do it upon the line A B, which he there shows you, and leaves you to supply: *And the same, by the like means, may be done upon any other strait line*; and then infers his general conclusion. Yet I have not heard any man object that the Induction was not sufficient, because he did not actually performe it in all lines possible."—(Wallis, Due Correction to Mr. Hobbes, Oxon. 1656, sect. v. p. 42.) This is induction *by parity of reasoning.*

So also Aristot. Analyt. Poster. I. iv. p. 73, b. 32: τὸ καθόλου δὲ ὑπάρχει τότε, ὅταν ἐπὶ τοῦ τυχόντος καὶ πρώτου δεικνύηται.

versal Negative) neither can A be predicated of any B. Again, if A can be predicated of some B, in this case also, and for the same reason, B can be predicated of some A.[a] Here the rule for the Universal Negative, supposed already established, is applied legitimately to prove the rules for Affirmatives. But in the first case, that of the Universal, it fails to prove *some* in the sense of *not-all* or *some-at-most*, which is required; whereas, the rules for both cases can be proved by Induction, like the formula about the Universal Negative. When we come to the Particular Negative, Aristotle lays down the position, that it does not admit of being necessarily converted in any way. He gives no proof of this, beyond one single exemplification: If some animal is not a man, you are not thereby warranted in asserting the converse, that some man is not an animal.[b] It is plain that such an exemplification is only an appeal to Induction: you produce one particular example, which is entering on the track of Induction; and one example alone is sufficient to establish the negative of an universal proposition.[c]

[a] Aristot. Analyt. Prior. I. ii. p. 25, a. 17-22.

[b] Ibid. p. 25, a. 22-26.

[c] Though some may fancy that the rule for converting the Universal Negative is intuitively known, yet every one must see that the rule for converting the Universal Affirmative is not thus self-evident, or derived from natural intuition. In fact, I believe that every learner at first hears it with great surprise. Some are apt to fancy that the Universal Affirmative (like the Particular Affirmative) may be converted *simply*. Indeed this error is not unfrequently committed in actual reasoning; all the more easily, because there is a class of cases (with subject and predicate co-extensive) where the converse of the Universal Affirmative is really true. Also, in the case of the Particular Negative, there are many true propositions in which the simple converse is true. A novice might incautiously generalize upon these instances, and conclude that both were convertible simply. Nor could you convince him of his error except by producing examples in which, when a true proposition of this kind is converted simply, the resulting converse is notoriously false. The appeal to various separate cases

The converse of a Particular Negative is not in all cases true, though it may be true in many cases.

From one proposition taken singly, no new proposition can be inferred; for purposes of inference, two propositions at least are required.[a] This brings us to the rules of the Syllogism, where two propositions as premisses conduct us to a third which necessarily follows from them; and we are introduced to the well-known three Figures with their various Modes.[b] To form a valid Syllogism, there must be three terms and no more; the two, which appear as Subject and Predicate of the conclusion, are called the *minor* term (or minor extreme) and the *major* term (or major extreme) respectively; while the third or *middle* term must appear in each of the premisses, but not in the conclusion. These terms are called *extremes* and *middle*, from the position which they occupy in every perfect Syllogism—that is in what Aristotle ranks as the First among the three figures. In *his* way of enunciating the Syllogism, this middle position formed a conspicuous feature; whereas the modern arrangement disguises it, though the denomination *middle* term is still retained. Aristotle usually employs letters of the alphabet, which he was the first to select as abbreviations for exposition;[c]

is the only basis on which we can rest for testing the correctness or incorrectness of all these maxims proclaimed as universal.

[a] Analyt. Prior. I. xv. p. 34, a. 17; xxiii. p. 40, b. 35; Analyt. Poster. I. iii. p. 73, a. 7.

[b] Aristot. Analyt. Prior. I. iv. p. 25, b. 26, seq.

[c] M. Barthélemy St. Hilaire (Logique d'Aristote, vol. ii. p. 7, n.), referring to the examples of Conversion in chap. ii, observes:—"Voici le prémier usage des lettres représentant des idées; c'est un procédé tout à fait algébrique, c'est à dire, de généralisation. Déjà, dans l'Herméneia, ch. 13, § 1 et suiv., Aristote a fait usage de tableaux pour représenter sa pensée relativement à la consécution des modales. Il parle encore spécialement de figures explicatives, liv. 2. des Derniers Analytiques, ch. 17, § 7. Vingt passages de l'Histoire des Animaux attestent qu'il joignait des dessins à ses observations et à ses théories zoologiques.

and he has two ways (conforming to what he had said in the first chapter of the present treatise) of enunciating the modes of the First figure. In one way, he begins with the major extreme (Predicate of the conclusion): A may be predicated of all B, B may be predicated of all C; therefore, A may be predicated of all C (Universal Affirmative). Again, A cannot be predicated of any B, B can be predicated of all C; therefore, A cannot be predicated of any C (Universal Negative). In the other way, he begins with the minor term (Subject of the conclusion): C is in the whole B, B is in the whole A; therefore, C is in the whole A (Universal Affirmative). And, C is in the whole B, B is not in the whole A; therefore, C is not in the whole A (Universal Negative). We see thus that in Aristotle's way of enunciating the First figure, the middle term is really placed between the two extremes,[a] though this is not so in the Second and Third figures. In the modern way of enunciating these figures, the middle term is never placed between the two extremes; yet the denomination *middle* still remains.

The Modes of each figure are distinguished by the different character and relation of the two premisses, according as these are either affirmative or negative, either universal or particular. Accordingly, there are four possible varieties of each, and sixteen possible modes or varieties of combinations between the two.

Les illustrations pittoresques datent donc de fort loin. L'emploi symbolique des lettres a été appliqué aussi par Aristote à la Physique. Il l'avait emprunté, sans doute, aux procédés des mathématiciens."

We may remark, however, that when Aristotle proceeds to specify those combinations of propositions which *do not* give a valid conclusion, he is not satisfied with giving letters of the alphabet: he superadds special illustrative examples (Analyt. Prior. I. v. p. 27, a. 7, 12, 34, 38).

[a] Aristot. Analyt. Prior. I. iv. p. 25, b. 35: *καλῶ δὲ μέσον, ὃ καὶ αὐτὸ ἐν ἄλλῳ καὶ ἄλλο ἐν τούτῳ ἐστίν, ὃ καὶ τῇ θέσει γίνεται μέσον.*

Aristotle goes through most of the sixteen modes, and shows that in the First figure there are only four among them that are legitimate, carrying with them a necessary conclusion. He shows, farther, that in all the four there are two conditions observed, and that both these conditions are indispensable in the First figure:—(1) The major proposition must be universal, either affirmative or negative; (2) The minor proposition must be affirmative, either universal or particular or indefinite. Such must be the character of the premisses, in the First figure, wherever the conclusion is valid and necessary; and *vice versâ*, the conclusion will be valid and necessary, when such is the character of the premisses.*

In regard to the four valid modes (*Barbara, Celarent, Darii, Ferio*, as we read in the scholastic Logic) Aristotle declares at once in general language that the conclusion follows necessarily; which he illustrates by setting down in alphabetical letters the skeleton of a syllogism in *Barbara*. If A is predicated of all B, and B of all C, A must necessarily be predicated of all C. But he does not justify it by any real example; he produces no special syllogism with real terms, and with a conclusion known beforehand to be true. He seems to think that the general doctrine will be accepted as evident without any such corroboration. He counts upon the learner's memory and phantasy for supplying, out of the past discourse of common life, propositions conforming to the conditions in which the symbolical letters have been placed, and for not supplying any contradictory examples. This might suffice for a treatise; but we may reasonably believe that Aristotle, when teaching in his school, would superadd illustra-

* Aristot. Analyt. Prior. I. iv. p. 26, b. 26, et sup.

tive examples; for the doctrine was then novel, and he is not unmindful of the errors into which learners often fall spontaneously.[a]

When he deals with the remaining or invalid modes of the First figure, his manner of showing their invalidity is different, and in itself somewhat curious. "If (he says) the major term is affirmed of all the middle, while the middle is denied of all the minor, no necessary consequence follows from such being the fact, nor will there be any syllogism of the two extremes; for it is equally possible, either that the major term may be affirmed of all the minor, or that it may be denied of all the minor; so that no conclusion, either universal or particular, is necessary in all cases."[b] Examples of such double possibility are then exhibited: first, of three terms arranged in two propositions (A and E), in which, from the terms specially chosen, the major happens to be truly affirmable of all the minor; so that the third proposition is an universal Affirmative:—

Major and Middle. } Animal is predicable of every Man;
Middle and Minor. } Man is not predicable of any Horse;
Major and Minor. } Animal is predicable of every Horse.

Next, a second example is set out with new terms, in which the major happens not to be truly predicable of any of the minor; thus exhibiting as third proposition an universal Negative:—

Major and Middle. } Animal is predicable of every Man;
Middle and Minor. } Man is not predicable of any Stone;
Major and Minor. } Animal is not predicable of any Stone.

Here we see that the full exposition of a syllogism is

[a] Analyt. Poster. I. xxiv. p. 85, b. 21. [b] Analyt. Prior. I. iv. p. 26, a. 2, seq.

indicated with real terms common and familiar to every one; alphabetical symbols would not have sufficed, for the learner must himself recognize the one conclusion as true, the other as false. Hence we are taught that, after two premisses thus conditioned, if we venture to join together the major and minor so as to form a pretended conclusion, we may in some cases obtain a true proposition universally Affirmative, in other cases a true proposition universally Negative. Therefore (Aristotle argues) there is no one necessary conclusion, the same in all cases, derivable from such premisses; in other words, this mode of syllogism is invalid and proves nothing. He applies the like reasoning to all the other invalid modes of the First figure; setting them aside in the same way, and producing examples wherein double and opposite conclusions (improperly so called), both true, are obtained in different cases from the like arrangement of premisses.

This mode of reasoning plainly depends upon an appeal to prior experience. The validity or invalidity of each mode of the First figure is tested by applying it to different particular cases, each of which is familiar and known to the learner *aliunde:* in one case, the conjunction of the major and minor terms in the third proposition makes an universal Affirmative which he knows to be true; in another case, the like conjunction makes an universal Negative, which he also knows to be true; so that there is no one *necessary* (*i.e.* no one uniform and trustworthy) conclusion derivable from such premisses.* In other words, these modes of the

* Though M. Barthélemy St. Hilaire (note, p. 19) declares Aristotle's exposition to be a model of analysis, it appears to me that the grounds for disallowing this invalid mode of the First figure (A—E—A, or A—E—E) are not clearly set forth by Aristotle himself, while they are rendered still darker by some of his best commentators. Thus Waitz says (p. 381):

First figure are not valid or available in form; the negation being sufficiently proved by one single undisputed example.

We are now introduced to the Second figure, in which each of the two premisses has the middle term as Predicate.* To give a legitimate conclusion in this figure, one or other of the premisses must be negative, and the major premiss must be universal; moreover no affirmative conclusions can ever be obtained in it—none but negative conclusions, universal or particular. In this Second figure too, Aristotle recognizes four valid

"Per exempla allata probat (Aristoteles) quod demonstrare debebat ex ipsâ ratione quam singuli termini inter se habeant: est enim proprium artis logicæ, ut terminorum rationem cognoscat, dum res ignoret. Num de Caio prædicetur animal nescit, scit de Caio prædicari animal, si animal de homine et homo de Caio prædicetur."

This comment of Waitz appears to me founded in error. Aristotle had no means of shewing the invalidity of the mode A E in the First figure, except by an appeal to particular examples. The invalidity of the invalid modes, and the validity of the valid modes, rest alike upon this ultimate reference to examples of propositions known to be true or false, by prior experience of the learner. The valid modes are those which will stand this trial and verification; the invalid modes are those which will not stand it. Not till such verification has been made, is one warranted in generalizing the result, and enunciating a formula applicable to unknown particulars (rationem terminorum cognoscere, dum res ignoret). It was impossible for Aristotle to do what Waitz requires of him. I take the opposite ground, and regret that he did not set forth the fundamental test of appeal to example and experience, in a more emphatic and unmistakeable manner.

M. Barthélemy St. Hilaire (in the note to his translation, p. 14) does not lend any additional clearness; when he talks of the "*conclusion*" from the propositions A and E in the First figure. Julius Pacius says (p. 134): "Si tamen *conclusio* dici debet, quæ non colligitur ex propositionibus," &c. Moreover, M. St. Hilaire (p. 19) slurs over the legitimate foundation, the appeal to experience, much as Aristotle himself does: "Puis, prenant des exemples où la *conclusion est de toute évidence*, Aristote les applique successivement à chacune de ces combinaisons; celles qui donnent la *conclusion fournie d'ailleurs par le bon sens*, sont concluantes ou syllogistiques, les autres sont asyllogistiques."

* Analyt. Prior. I. v. p. 26, b. 34. As Aristotle enunciates a proposition by putting the predicate before the subject, he says that in this Second figure the middle term comes *πρῶτον τῇ θέσει*. In the Third figure, for the same reason, he calls it *ἔσχατον τῇ θέσει*, vi. p. 28, a 15.

modes; setting aside the other possible modes as invalid[a] (in the same way as he had done in the First figure), because the third proposition or conjunction of the major term with the minor, might in some cases be a true universal affirmative, in other cases a true universal negative. As to the third and fourth of the valid modes, he demonstrates them by assuming the contradictory of the conclusion, together with the major premiss, and then showing that these two premisses form a new syllogism, which leads to a conclusion contradicting the minor premiss. This method, called *Reductio ad Impossibile*, is here employed for the first time; and employed without being ushered in or defined, as if it were familiarly known.[b]

Lastly, we have the Third figure, wherein the middle term is the Subject in both premisses. Here one at least of the premisses must be universal, either affirmative or negative. But no universal conclusions can be obtained in this figure; all the conclusions are particular. Aristotle recognizes six legitimate modes; in all of which the conclusions are particular, four of them being affirmative, two negative. The other possible modes he sets aside as in the two preceding figures.[c]

But Aristotle assigns to the First figure a marked superiority as compared with the Second and Third. It is the only one that yields perfect syllogisms; those

[a] Analyt. Prior. I. v. p. 27, a. 18. In these invalid modes, Aristotle says there is no *syllogism*; therefore we cannot properly speak of a *conclusion*, but only of a third proposition, conjoining the major with the minor.

[b] Analyt. Prior. I. v. p. 27, a. 15, 26, seq. It is said to involve *ὑπόθεσις*, p. 28, a. 7; to be *ἐξ ὑποθέσεως*, xxiii. p. 41, a. 25; to be *τοῦ ἐξ ὑποθέσεως μέρος*, as opposed to *δεικτικός*, xxiii. p. 40, b. 25.

M. B. St. Hilaire remarks justly, that Aristotle might be expected to define or explain what it is, on first mentioning it (note, p. 22).

[c] Analyt. Prior. I. vi. p. 28, a. 10-p. 29, a. 18.

furnished by the other two are all imperfect. The cardinal principle of syllogistic proof, as he conceives it, is—That whatever can be affirmed or denied of a whole, can be affirmed or denied of any part thereof.[a] The major proposition affirms or denies something universally respecting a certain whole; the minor proposition declares a certain part to be included in that whole. To this principle the four modes of the First figure manifestly and unmistakably conform, without any transformation of their premisses. But in the other figures such conformity does not obviously appear, and must be demonstrated by reducing their syllogisms to the First figure; either ostensively by exposition of a particular case, and conversion of the premisses, or by *Reductio ad Impossibile*. Aristotle, accordingly, claims authority for the Second and Third figures only so far as they can be reduced to the First.[b] We must, however, observe that in this process of reduction no new evidence is taken in; the matter of evidence remains unchanged, and the form alone is altered, according to laws of logical conversion which Aristotle has already laid down and justified. Another ground of the superiority and perfection which he claims for the First figure, is, that it is the only one in which every variety of conclusion can be proved; and especially the only one in which the Universal Affirmative can be proved—the great aim of scientific research. Whereas, in the Second figure we can prove

[a] Analyt. Prior. I. xli. p. 49, b. 37: *ὅλως γὰρ ὃ μή ἐστιν ὡς ὅλον πρὸς μέρος καὶ ἄλλο πρὸς τοῦτο ὡς μέρος πρὸς ὅλον, ἐξ οὐδενὸς τῶν τοιούτων δείκνυσιν ὁ δεικνύων, ὥστε οὐδὲ γίνεται συλλογισμός.*

He had before said this about the relation of the three terms in the Syllogism, I. iv. p. 25, b. 32: *ὅταν ὅροι τρεῖς οὕτως ἔχωσι πρὸς ἀλλήλους ὥστε τὸν ἔσχατον ἐν ὅλῳ εἶναι τῷ μέσῳ καὶ τὸν μέσον ἐν ὅλῳ τῷ πρώτῳ ἢ εἶναι ἢ μὴ εἶναι, ἀνάγκη τῶν ἄκρων εἶναι συλλογισμὸν τέλειον* (*Dictum de Omni et Nullo*).

[b] Ibid. I. vii. p. 29, a. 30-b. 25.

only *negative* conclusions, universal or particular; and in the Third figure only *particular* conclusions, affirmative or negative.[a]

Such are the main principles of syllogistic inference and rules for syllogistic reasoning, as laid down by Aristotle. During the mediæval period, they were allowed to ramify into endless subtle technicalities, and to absorb the attention of teachers and studious men, long after the time when other useful branches of sciencé and literature were pressing for attention. Through such prolonged monopoly—which Aristotle, among the most encyclopedical of all writers, never thought of claiming for them—they have become so discredited, that it is difficult to call back attention to them as they stood in the Aristotelian age. We have to remind the reader, again, that though language was then used with great ability for rhetorical and dialectical purposes, there existed as yet hardly any systematic or scientific study of it in either of these branches. The scheme and the terminology of any such science were alike unknown, and Aristotle was obliged to construct it himself from the foundation. The rhetorical and dialectical teaching as then given (he tells us) was mere unscientific routine, prescribing specimens of art to be committed to memory: respecting syllogism (or the conditions of legitimate deductive inference) absolutely nothing had been said.[b] Under these

[a] Analyt. Prior. I. iv. p. 26, b. 30, p. 27, a. 1, p. 28, a. 9, p. 29, a. 15. An admissible syllogism in the Second or Third figure is sometimes called δυνατὸς as opposed to τέλειος, p. 41, b. 33. Compare Kampe, Die Erkenntniss-Theorie des Aristoteles, p. 245, Leipzig, 1870.

[b] Aristot. Sophist. Elench. p. 184, a. 1, b. 2: διόπερ ταχεῖα μὲν ἄτεχνος δ' ἦν ἡ διδασκαλία τοῖς μανθάνουσι παρ' αὐτῶν· οὐ γὰρ τέχνην ἀλλὰ τὰ ἀπὸ τῆς τέχνης διδόντες παιδεύειν ὑπελάμβανον περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἴχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἢ τριβῇ ζητοῦντες πολὺν χρόνον ἐπονοῦμεν.

circumstances, his theory of names, notions, and propositions as employed for purposes of exposition and ratiocination, is a remarkable example of original inventive power. He had to work it out by patient and laborious research. No way was open to him except the diligent comparison and analysis of propositions. And though all students have now become familiar with the various classes of terms and propositions, together with their principal characteristics and relations, yet to frame and designate such classes for the first time without any precedent to follow, to determine for each the rules and conditions of logical convertibility, to put together the constituents of the Syllogism, with its graduation of Figures and difference of Modes, and with a selection, justified by reasons given, between the valid and the invalid modes—all this implies a high order of original systematizing genius, and must have required the most laborious and multiplied comparisons between propositions in detail.

The preceding abridgement of Aristotle's exposition of the Syllogism applies only to propositions simply affirmative or simply negative. But Aristotle himself, as already remarked, complicates the exposition by putting the Modal propositions (Possible, Necessary) upon the same line as the above-mentioned Simple propositions. I have noticed, in dealing with the treatise De Interpretatione, the confusion that has arisen from thus elevating the Modals into a line of classification coordinate with propositions simply Assertory. In the Analytica, this confusion is still more sensibly felt, from the introduction of syllogisms in which one of the premisses is necessary, while the other is only possible. We may remark, however, that, in the Analytica, Aristotle is stricter in defining the Possible than he had been in the De Interpretatione; for he now disjoins

the Possible altogether from the Necessary, making it equivalent to the Problematical (not merely *may be*, but *may be or may not be*).[a] In the middle, too, of his diffuse exposition of the Modals, he inserts one important remark, respecting universal propositions generally, which belongs quite as much to the preceding exposition about propositions simply assertory. He observes that universal propositions have nothing to do with time, present, past, or future; but are to be understood in a sense absolute and unqualified.[b]

Having finished with the Modals, Aristotle proceeds to lay it down, that all demonstration must fall under one or other of the three figures just described; and therefore that all may be reduced ultimately to the two first modes of the First figure. You cannot proceed a step with two terms only and one proposition only. You must have two propositions including three terms; the middle term occupying the place assigned to it in one or other of the three figures.[c] This is obviously true when you demonstrate by direct or ostensive syllogism; and it is no less true when you proceed by *Reductio ad Impossibile*. This last is one mode of syllogizing from an hypothesis or assumption:[d] your

[a] Analyt. Prior. I. viii. p. 29, a. 32; xiii. p. 32, a. 20-36: *τὸ γὰρ ἀναγκαῖον ὁμωνύμως ἐνδέχεσθαι λέγομεν.* In xiv. p. 33, b. 22, he excludes this equivocal meaning of *τὸ ἐνδεχόμενον—δεῖ δὲ τὸ ἐνδέχεσθαι λαμβάνειν μὴ ἐν τοῖς ἀναγκαίοις, ἀλλὰ κατὰ τὸν εἰρημένον διορισμόν.* See xiii. p. 32, a. 33, where *τὸ ἐνδέχεσθαι ὑπάρχειν* is asserted to be equivalent to or convertible with *τὸ ἐνδέχεσθαι μὴ ὑπάρχειν*; and xix. p. 38, a. 35: *τὸ ἐξ ἀνάγκης οὐκ ἦν ἐνδεχόμενον.* Theophrastus and Eudemus differed from Aristotle about his theory of the Modals in several points (Scholia ad Analyt. Priora, pp. 161, b. 30; 162, b. 23; 166, a. 12, b. 15, Brand.). Respecting the want of clearness in Aristotle about *τὸ ἐνδεχόμενον*, see Waitz's note ad p. 32, b. 16. Moreover, he sometimes uses *ὑπάρχον* in the widest sense, including *ἐνδεχόμενον* and *ἀναγκαῖον*, xxiii. p. 40, b. 24.

[b] Analyt. Prior. I. xv. p. 34, b. 7.

[c] Ibid. xxiii. p. 40, b. 20, p. 41, a. 4-20.

[d] Ibid. p. 40, b. 25: *ἔτι ἡ δεικτικῶς ἡ ἐξ ὑποθέσεως· τοῦ δ' ἐξ ὑποθέσεως μέρος τὸ διὰ τοῦ ἀδυνάτου.*

conclusion being disputed, you prove it indirectly, by assuming its contradictory to be true, and constructing a new syllogism by means of that contradictory together with a second premiss admitted to be true; the conclusion of this new syllogism being a proposition obviously false or known beforehand to be false. Your demonstration must be conducted by a regular syllogism, as it is when you proceed directly and ostensively. The difference is, that the conclusion which you obtain is not that which you wish ultimately to arrive at, but something notoriously false. But as this false conclusion arises from your assumption or hypothesis that the contradictory of the conclusion originally disputed was true, you have indirectly made out your case that this contradictory must have been false, and therefore that the conclusion originally disputed was true. All this, however, has been demonstration by regular syllogism, but starting from an hypothesis assumed and admitted as one of the premisses.*

Aristotle here again enforces what he had before urged—that in every valid syllogism, one premiss at least must be affirmative, and one premiss at least must be universal. If the conclusion be universal, both premisses must be so likewise; if it be particular, one of the premisses may not be universal. But without one universal premiss at least, there can be no syllogistic proof. If you have a thesis to support, you cannot assume (or ask to be conceded to you) that very thesis, without committing

* Analyt. Prior. I. xxiii. p. 41, a. 23: *πάντες γὰρ οἱ διὰ τοῦ ἀδυνάτου περαίνοντες τὸ μὲν ψεῦδος συλλογίζονται, τὸ δ' ἐξ ἀρχῆς ἐξ ὑποθέσεως δεικνύουσιν, ὅταν ἀδύνατόν τι συμβαίνῃ τῆς ἀντιφάσεως τεθείσης.*

It deserves to be remarked that Aristotle uses the phrase *συλλογισμὸς ἐξ ὑποθέσεως*, not *συλλογισμὸς ὑποθετικός*. This bears upon the question as to his views upon what subsequently received the title of *hypothetical syllogisms*; a subject to which I shall advert in a future note.

petitio principii (*i.e. quæsiti* or *probandi*); you must assume (or ask to have conceded to you) some universal proposition containing it and more besides; under which universal you may bring the subject of your thesis as a minor, and thus the premisses necessary for supporting it will be completed. Aristotle illustrates this by giving a demonstration that the angles at the base of an isosceles triangle are equal; justifying every step in the reasoning by an appeal to some universal proposition.[a]

Again, every demonstration is effected by two propositions (an *even* number) and by three terms (an *odd* number); though the same proposition may perhaps be demonstrable by more than one pair of premisses, or through more than one middle term;[b] that is, by two or more distinct syllogisms. If there be more than three terms and two propositions, either the syllogism will no longer be one but several; or there must be particulars introduced for the purpose of obtaining an universal by induction; or something will be included, superfluous and not essential to the demonstration, perhaps for the purpose of concealing from the respondent the real inference meant.[c] In the case (afterwards called *Sorites*) where the ultimate conclusion is obtained through several mean terms in continuous series, the number of terms will always exceed by one the number of propositions; but the numbers may be odd or even, according to circumstances. As terms are added, the total of intermediate conclusions, if drawn

[a] Analyt. Prior. I. xxiv. p. 41, b. 6-31. The demonstration given (b. 13-22) is different from that which we read in Euclid, and is not easy to follow. It is more clearly explained by Waitz (p. 434) than either by Julius Pacius or by M. Barth. St. Hilaire (p. 108).

[b] Analyt. Prior. I. xxv. p. 41, b. 36, seq.

[c] Ibid. xxv. p. 42, a. 23: *μάτην ἔσται εἰλημμένα, εἰ μὴ ἐπαγωγῆς ἢ κρύψεως ἕνεκά τινος ἄλλου τῶν τοιούτων χάριν.* Ib. a. 38: *οὗτος ὁ λόγος ἢ οὐ συλλελόγισται ἢ πλείω τῶν ἀναγκαίων ἠρώτηκε πρὸς τὴν θέσιν.*

out in form, will come to be far greater than that of the terms or propositions, multiplying as it will do in an increasing ratio to them.[a]

It will be seen clearly from the foregoing remarks that there is a great difference between one thesis and another as to facility of attack or defence in Dialectic. If the thesis be an Universal Affirmative proposition, it can be demonstrated only in the First figure, and only by one combination of premisses; while, on the other hand, it can be impugned either by an universal negative, which can be demonstrated both in the First and Second figures, or by a particular negative, which can be demonstrated in all the three figures. Hence an Universal Affirmative thesis is at once the hardest to defend and the easiest to oppugn: more so than either a Particular Affirmative, which can be proved both in the First and Third figures; or a Universal Negative, which can be proved either in First or Second.[b] To the opponent, an universal thesis affords an easier victory than a particular thesis; in fact, speaking generally, his task is easier than that of the defendant.

In the Analytica Priora, Aristotle proceeds to tell us that he contemplates not only theory, but also practice and art. The reader must be taught, not merely to understand the principles of Syllogism, but likewise where he can find the matter for constructing syllogisms readily, and how he can obtain the principles of demonstration pertinent to each thesis propounded.[c]

A thesis being propounded in appropriate terms, with

[a] Analyt. Prior. I. xxv. p. 42, b. 5-26.

[b] Ibid. I. xxvi. p. 42, b. 27-p. 43, a. 15.

[c] Ibid. I. xxvii. p. 43, a. 20: *πῶς δ' εὐπορήσομεν αὐτοὶ πρὸς τὸ τιθέμενον ἀεὶ συλλογισμῶν, καὶ διὰ ποίας ὁδοῦ λεψόμεθα τὰς περὶ ἕκαστον ἀρχάς, νῦν ἤδη λεκτέον· οὐ γὰρ μόνον ἴσως δεῖ τὴν γένεσιν θεωρεῖν τῶν συλλογισμῶν, ἀλλὰ καὶ τὴν δύναμιν ἔχειν τοῦ ποιεῖν.* The second section of Book I. here begins.

subject and predicate, how are you the propounder to seek out arguments for its defence? In the first place, Aristotle reverts to the distinction already laid down at the beginning of the Categoriæ.[a] Individual things or persons are subjects only, never appearing as predicates — this is the lowest extremity of the logical scale: at the opposite extremity of the scale, there are the highest generalities, predicates only, and not subjects of any predication, though sometimes supposed to be such, as matters of dialectic discussion.[b] Between the lowest and highest we have intermediate or graduated generalities, appearing sometimes as subjects, sometimes as predicates; and it is among these that the materials both of problems for debate, and of premisses for proof, are usually found.[c]

You must begin by putting down, along with the matter in hand itself, its definition and its *propria*; after that, its other predicates; next, those predicates which *cannot* belong to it; lastly, those other subjects, of which it may itself be predicated. You must classify its various predicates distinguishing the essential, the *propria*, and the accidental; also distinguishing the true and unquestionable, from the problematical and hypothetical.[d] You must look out for those predicates which belong to it as subject universally, and not to certain portions of it only; since universal propositions are indispensable in syllogistic proof, and indefinite propositions can only be reckoned as particular. When a subject is included in some larger genus—as, for example, man in animal—

[a] Analyt. Prior. I. xxvii. p. 43, a. 25, seq.

[b] Ibid. p. 43, a. 39: *πλὴν εἰ μὴ κατὰ δόξαν.* Cf. Schol. of Alexander, p. 175, a. 44, Br.: *ἐνδόξως καὶ διαλεκτικῶς, ὥσπερ εἶπεν ἐν τοῖς Τοπικοῖς*, that even the *principia* of science may be debated; for example, in book B. of the Metaphysica. Aristotle does not recognize either *τὸ ὄν* or *τὸ ἕν* as true genera, but only as predicates.

[c] Ibid. a. 40-43.

[d] Ibid. b. 8: *καὶ τούτων ποῖα δοξαστικῶς καὶ ποῖα κατ' ἀλήθειαν.*

you must not look for the affirmative or negative predicates which belong to animal universally (since all these will of course belong to man also) but for those which distinguish man from other animals; nor must you, in searching for those lower subjects of which man is the predicate, fix your attention on the higher genus animal; for animal will of course be predicable of all those of which man is predicable. You must collect what pertains to man specially, either as predicate or as subject; nor merely that which pertains to him necessarily and universally, but also usually and in the majority of cases; for most of the problems debated belong to this latter class, and the worth of the conclusion will be co-ordinate with that of the premisses.[a] Do not select predicates that are predicable[b] both of the predicate and subject; for no valid affirmative conclusion can be obtained from them.

Thus, when the thesis to be maintained is an universal affirmative (*e.g.* A is predicable of all E), you will survey all the subjects to which A will apply as predicate, and all the predicates applying to E as subject. If these two lists coincide in any point, a middle term will be found for the construction of a good syllogism in the First figure. Let B represent the list of predicates

[a] Analyt. Prior. I. xxvii. p. 43, b. 10-35.

[b] Ibid. b. 36: *ἔτι τὰ πᾶσιν ἐπόμενα οὐκ ἐκλεκτέον· οὐ γὰρ ἔσται συλλογισμὸς ἐξ αὐτῶν.* The phrase *τὰ πᾶσιν ἐπόμενα*, as denoting predicates applicable both to the predicate and to the subject, is curious. We should hardly understand it, if it were not explained a little further on, p. 44, b. 21. Both the Scholiast and the modern commentators understand *τὰ πᾶσιν ἐπόμενα* in this sense; and I do not venture to depart from them. At the same time, when I read six lines afterwards (p. 44, b. 26) the words *οἷον εἰ τὰ ἐπόμενα ἑκατέρῳ ταὐτά ἐστιν*—in which the same meaning as that which the commentators ascribe to *τὰ πᾶσιν ἐπόμενα* is given in its own special and appropriate terms, and thus the same supposition unnecessarily repeated—I cannot help suspecting that Aristotle intends *τὰ πᾶσιν ἐπόμενα* to mean something different; to mean such wide and universal predicates as *τὸ ἓν* and *τὸ ὄν*, which soar above the Categories and apply to every thing, but denote no real *genera*.

belonging universally to A; D, the list of predicates which cannot belong to it; C, the list of subjects to which A pertains universally as predicate. Likewise, let F represent the list of predicates belonging universally to E; H, the list of predicates that cannot belong to E; G, the list of subjects to which E is applicable as predicate. If, under these suppositions, there is any coincidence between the list C and the list F, you can construct a syllogism (in *Barbara*, Fig. 1), demonstrating that A belongs to *all* E; since the predicate in F belongs to all E, and A universally to the subject in C. If the list C coincides in any point with the list G, you can prove that A belongs to *some* E, by a syllogism (in *Darapti*, Fig. 3). If, on the other hand, the list F coincides in any point with the list D, you can prove that A cannot belong to any E: for the predicate in D cannot belong to any A, and therefore (by converting simply the universal negative) A cannot belong as predicate to any D; but D coincides with F, and F belongs to all E; accordingly, a syllogism (in *Celarent*, Fig. 1), may be constructed, shewing that A cannot belong to any E. So also, if B coincides in any point with H, the same conclusion can be proved: for the predicate in B belongs to all A, but B coincides with H, which belongs to no E; whence you obtain a syllogism (in *Camestres*, Fig. 2), shewing that no A belongs to E.[a] In collecting the predicates and subjects both of A and of E, the highest and most universal expression of them is to be preferred, as affording the largest grasp for the purpose of obtaining a suitable middle term.[b] It will be seen (as has been declared

[a] Analyt. Prior. I. xxviii. p. 43, b. 39–p. 44, a. 35.

[b] Ibid. p. 44, a. 39. Alexander and Philoponus (Scholia, p. 177, a. 19, 39, Brandis) point out an inconsistency between what Aristotle says here and what he had said in one of the preceding paragraphs, dissuading the inquirer from attending to the highest generalities, and recommending him

already) that every syllogism obtained will have three terms and two propositions; and that it will be in one or other of the three figures above described.[a]

The way just pointed out is the only way towards obtaining a suitable middle term. If, for example, you find some predicate applicable both to A and E, this will not conduct you to a valid syllogism; you will only obtain a syllogism in the Second figure with two affirmative premisses, which will not warrant any conclusion. Or if you find some predicate which cannot belong either to A or to E, this again will only give you a syllogism in the Second figure with two negative premisses, which leads to nothing. So also, if you have a term of which A can be predicated, but which cannot be predicated of E, you derive from it only a syllogism in the First figure, with its minor negative; and this, too, is invalid. Lastly, if you have a subject, of which neither A nor E can be predicated, your syllogism constructed from these conditions will have both its premisses negative, and will therefore be worthless.[b]

In the survey prescribed, nothing is gained by looking out for predicates (of A and E) which are different or opposite: we must collect such as are identical, since our purpose is to obtain from them a suitable middle term, which must be the same in both premisses. It is true that if the list B (containing the predicates universally belonging to A) and the list F (containing the predicates universally belonging to E) are incompatible

to look only at both subject and predicate in their special place on the logical scale. Alexander's way of removing the inconsistency is not successful: I doubt if there be an inconsistency. I understand Aristotle *here* to mean only that the universal expression KZ (*τὸ καθόλου* Z) is to be preferred to the indefinite or indeterminate (simply Z, *ἀδιόριστον*), also KΓ (*τὸ καθόλου* Γ) to simple Γ (*ἀδιόριστον*). This appears to me not inconsistent with the recommendation which Aristotle had given before.

[a] Analyt. Prior. I. xxviii. p. 44, b. 6-20.

[b] Ibid. I. xxviii. p. 44, b. 25-37.

or contrary to each other, you will arrive at a syllogism proving that no A can belong to E. But this syllogism will proceed, not so much from the fact that B and F are incompatible, as from the other fact, distinct though correlative, that B will to a certain extent coincide with H (the list of predicates which cannot belong to E). The middle term and the syllogism constituted thereby, is derived from the coincidence between B and H, not from the opposition between B and F. Those who derive it from the latter, overlook or disregard the real source, and adopt a point of view merely incidental and irrelevant.[a]

The precept here delivered—That in order to obtain middle terms and good syllogisms, you must study and collect both the predicates and the subjects of the two terms of your thesis—Aristotle declares to be equally applicable to all demonstration, whether direct or by way of *Reductio ad Impossibile*. In both the process of demonstration is the same—involving two premisses, three terms, and one of the three a suitable middle term. The only difference is, that in the direct demonstration, both premisses are propounded as true, while in the *Reductio ad Impossibile*, one of the premisses is assumed as true though known to be false, and the conclusion also.[b] In the other cases of hypothetical syllogism your attention must be directed, not to the original *quæsitum*, but to the condition annexed thereto; yet the search for predicates, subjects, and a middle term, must be conducted in the same manner.[c] Sometimes, by the

[a] Analyt. Prior. I. xxviii. p. 44, b. 38-p. 45, a. 22. *συμβαίνει δὴ τοῖς οὕτως ἐπισκοποῦσι προσεπιβλέπειν ἄλλην ὁδὸν τῆς ἀναγκαίας, διὰ τὸ λανθάνειν τὴν ταὐτότητα τῶν* B *καὶ τῶν* Θ.

[b] Ibid. I. xxix. p. 45, a. 25-b. 15.

[c] Ibid. I. xxix. p. 45, b. 15-20. This paragraph is very obscure. Neither Alexander, nor Waitz, nor St. Hilaire clears it up completely. See Schol. pp. 178, b., 179, a. Brandis.

Aristotle concludes by saying that syllogisms from an hypothesis ought to be reviewed and classified into varieties—*ἐπισκέψασθαι δὲ δεῖ καὶ διελεῖν ποσαχῶς οἱ ἐξ ὑποθέσεως*

help of a condition extraneous to the premisses, you may demonstrate an universal from a particular: *e.g.*, Suppose C (the list of subjects to which A belongs as predicate) and G (the list of subjects to which E belongs as predicate) to be identical; and suppose farther that the subjects in G are the *only* ones to which E belongs as predicate (this seems to be the *extraneous* or *extra-syllogistic* condition assumed, on which Aristotle's argument turns); then, A will be applicable to all E. Or if D (the list of predicates which cannot belong to A) and G (the list of subjects to which E belongs as predicate) are identical; then, assuming the like extraneous condition, A will not be applicable to any E.[a] In both these cases, the conclusion is more universal than the premisses; but it is because we take in an hypothetical assumption, in addition to the premisses.

Aristotle has now shewn a method of procedure common to all investigations and proper for the solution of all problems, wherever soluble. He has shewn, first, all the conditions and varieties of probative Syllogism, two premisses and three terms, with the place required for the middle term in each of the three figures; next, the quarter in which we are to look for all the materials necessary or suitable for constructing valid syllogisms. Having the two terms of the thesis given, we must study the predicates and subjects belonging to both, and must provide a large list of them; out of which list we must make selection according to the purpose of the moment. Our selection will be different, according as we wish to prove or to refute, and according as the conclusion that we wish to prove is an universal or a

(b. 20). But it is doubtful whether he himself ever executed this classification. It was done in the Analytica of his successor Theophrastus (Schol. p. 179, a. 6, 24). Compare the note of M. Barthélemy St. Hilaire, p. 140.

[a] Analyt. Prior. I. xxix. p. 45, b. 21-30.

particular. The lesson here given will be most useful in teaching the reasoner to confine his attention to the sort of materials really promising, so that he may avoid wasting his time upon such as are irrelevant.[a]

This method of procedure is alike applicable to demonstration in Philosophy or in any of the special sciences,[b] and to debate in Dialectic. In both, the premisses or *principia* of syllogisms must be put together in the same manner, in order to make the syllogism valid. In both, too, the range of topics falling under examination is large and varied; each topic will have its own separate premisses or *principia*, which must be searched out and selected in the way above described. Experience alone can furnish these *principia*, in each separate branch or department. Astronomical experience—the observed facts and phenomena of astronomy—have furnished the data for the scientific and demonstrative treatment of astronomy. The like with every other branch of science or art.[c] When the facts in each branch are brought together, it will be the province of the logician or analytical philosopher to set

[a] Analyt. Prior. I. xxix, p. 45, b. 36-xxx. p. 46, a. 10.

[b] Ibid. p. 46, a. 8: *κατὰ μὲν ἀλήθειαν ἐκ τῶν κατ' ἀλήθειαν διαγεγραμμένων ὑπάρχειν, εἰς δὲ τοὺς διαλεκτικοὺς συλλογισμοὺς ἐκ τῶν κατὰ δόξαν προτάσεων.*

Julius Pacius (p. 257) remarks upon the word *διαγεγραμμένων* as indicating that Aristotle, while alluding to special sciences distinguishable from philosophy on one side, and from dialectic on the other, had in view geometrical demonstrations.

[c] Analyt. Prior. I. xxx. p. 46, a. 10-20: *αἱ δ' ἀρχαὶ τῶν συλλογισμῶν καθόλου μὲν εἴρηνται—ἴδιαι δὲ καθ' ἑκάστην αἱ πλείσται. διὸ τὰς μὲν ἀρχὰς τὰς περὶ ἕκαστον ἐμπειρίας ἔστι παραδοῦναι. λέγω δ' οἷον τὴν ἀστρολογικὴν μὲν ἐμπειρίαν τῆς ἀστρολογικῆς ἐπιστήμης· ληφθέντων γὰρ ἱκανῶς τῶν φαινομένων οὕτως εὑρέθησαν αἱ ἀστρολογικαὶ ἀποδείξεις. ὁμοίως δὲ καὶ περὶ ἄλλην ὁποιανοῦν ἔχει τέχνην τε καὶ ἐπιστήμην.*

What Aristotle says here—of astronomical observation and experience as furnishing the basis for astronomical science—stands in marked contrast with Plato, who rejects this basis, and puts aside, with a sort of contempt, astronomical observation (Republic. vii. pp. 530-531); treating acoustics also in a similar way. Compare Aristot. Metaphys. Λ. p. 1073, a. 6, seq., with the commentary of Bonitz, p. 506.

out the demonstrations in a manner clear and fit for use. For if nothing in the way of true matter of fact has been omitted from our observation, we shall be able to discover and unfold the demonstration, on every point where demonstration is possible; and, wherever it is not possible, to make the impossibility manifest.[a]

For the fuller development of these important principles, the reader is referred to the treatise on Dialectic, entitled Topica, which we shall come to in a future chapter. There is nothing in all Aristotle's writings more remarkable than the testimony here afforded, how completely he considered all the generalities of demonstrative science and deductive reasoning to rest altogether on experience and inductive observation.

We are next introduced to a comparison between the syllogistic method, as above described and systematized, and the process called logical Division into *genera* and *species*; a process much relied upon by other philosophers, and especially by Plato. This logical Division, according to Aristotle, is a mere fragment of the syllogistic procedure; nothing better than a feeble syllogism.[b] Those who employed it were ignorant both of Syllogism and of its conditions. They tried to demonstrate—what never can be demonstrated—the essential constitution of the subject.[c] Instead of selecting a middle

[a] Analyt. Prior. I. xxx. p. 46, a. 22-27: *ὥστε ἂν ληφθῇ τὰ ὑπάρχοντα περὶ ἕκαστον, ἡμέτερον ἤδη τὰς ἀποδείξεις ἑτοίμως ἐμφανίζειν. εἰ γὰρ μηδὲν κατὰ τὴν ἱστορίαν παραλειφθείη τῶν ἀληθῶς ὑπαρχόντων τοῖς πράγμασιν, ἕξομεν περὶ ἅπαντος οὗ μέν ἔστιν ἀπόδειξις, ταύτην εὑρεῖν καὶ ἀποδεικνύναι, οὗ δὲ μὴ πέφυκεν ἀπόδειξις, τοῦτο ποιεῖν φανερόν.*

Respecting the word *ἱστορία*—investigation and record of matters of fact—the first sentence of Herodotus may be compared with Aristotle, Histor. Animal. p. 491, a. 12; also p. 757, b. 35; Rhetoric. p. 1359, b. 32.

[b] Analyt. Prior. I. xxxi. p. 46, a. 33. Alexander, in Scholia, p. 180, a. 14. The Platonic method of *διαίρεσις* is exemplified in the dialogues called Sophistês and Politicus; compare also Philêbus, c. v., p. 15.

[c] Analyt. Prior. I. xxxi. p. 46, a. 34: *πρῶτον δ' αὐτὸ τοῦτο ἐλελήθει*

term, as the Syllogism requires, more universal than the subject but less universal (or not more so) than the predicate, they inverted the proper order, and took for their middle term the highest universal. What really requires to be demonstrated, they never demonstrated but assume.[a]

Thus, they take the subject man, and propose to prove that man is mortal. They begin by laying down that man is an animal, and that every animal is either mortal or immortal. Here, the most universal term, animal, is selected as middle or as medium of proof; while after all, the conclusion demonstrated is, not that man is mortal, but that man is either mortal or immortal. The position that man is mortal, is assumed but not proved.[a] Moreover, by this method of logical division, all the steps are affirmative and none negative; there cannot be any refutation of error. Nor can any proof be given thus respecting *genus*, or *proprium*, or *accidens*; the *genus* is assumed, and the method proceeds from thence to *species* and *differentia*. No doubtful matter can be settled, and no unknown point elucidated by this method; nothing can be done except to arrange in a certain order what is already ascertained and unquestionable. To many investigations, accordingly, the method is altogether inapplicable; while even where it is applicable, it leads to no useful conclusion.[b]

We now come to that which Aristotle indicates as the third section of this First Book of the Analytica Priora. In the first section he explained the construction and constituents of Syllogism, the varieties of figure and mode, and the conditions indispensable to a valid conclusion. In the second section he tells us where we are to look

τοὺς χρωμένους αὐτῇ πάντας. καὶ πείθειν ἐπεχείρουν ὡς ὄντος δυνατοῦ περὶ οὐσίας ἀπόδειξιν γίνεσθαι καὶ τοῦ τί ἐστιν.

[a] Analyt. Prior. l. xxxi. p. 46, b. 1-12.

[b] Ibid. b. 26-37. Alexander in Schol. p. 180, b. 1.

for the premisses of syllogisms, and how we may obtain a stock of materials, apt and ready for use when required. There remains one more task to complete his plan—that he should teach the manner of reducing argumentation as it actually occurs (often invalid, and even when valid, often elliptical and disorderly), to the figures of syllogism as above set forth, for the purpose of testing its validity.[a] In performing this third part (Aristotle says) we shall at the same time confirm and illustrate the two preceding parts; for truth ought in every way to be consistent with itself.[b]

When a piece of reasoning is before us, we must first try to disengage the two syllogistic premisses (which are more easily disengaged than the three terms), and note which of them is universal or particular. The reasoner, however, may not have set out both of them clearly: sometimes he will leave out the major, sometimes the minor, and sometimes, even when enunciating both of them, he will join with them irrelevant matter. In either of these cases we must ourselves supply what is wanting and strike out the irrelevant. Without this aid, reduction to regular syllogism is impracticable; but it is not always easy to see what the exact deficiency is. Sometimes indeed the conclusion may follow necessarily from what is implied in the premisses, while yet the premisses themselves do not form a correct syllogism; for though every such syllogism carries with it necessity, there may be necessity without a syllogism. In the process of reduction, we must first disengage and set down the two premisses, then the three terms; out of which three, that one which appears twice will be the middle term. If we do not find one term twice

[a] Analyt. Prior. I. xxxii. p. 47, a. 2: λοιπὸν γὰρ ἔτι τοῦτο τῆς σκέψεως· εἰ γὰρ τήν τε γένεσιν τῶν συλλογισμῶν θεωροῖμεν καὶ τοῦ εὑρίσκειν ἔχοιμεν δύναμιν, ἔτι δὲ τοὺς γεγενημένους ἀναλύοιμεν εἰς τὰ προειρημένα σχήματα, τέλος ἂν ἔχοι ἡ ἐξ ἀρχῆς πρόθεσις.

[b] Ibid. a. 8.

repeated, we have got no middle and no real syllogism. Whether the syllogism when obtained will be in the first, second, or third figure, will depend upon the place of the middle term in the two premisses. We know by the nature of the conclusion which of the three figures to look for, since we have already seen what conclusions can be demonstrated in each.[a]

Sometimes we may get premisses which look like those of a true syllogism, but are not so in reality; the major proposition ought to be an universal, but it may happen to be only indefinite, and the syllogism will not in all cases be valid; yet the distinction between the two often passes unnoticed.[b] Another source of fallacy is, that we may set out the terms incorrectly; by putting (in modern phrase) the abstract instead of the concrete, or abstract in one premiss and concrete in the other.[c] To guard against this, we ought to use the concrete term in preference to the abstract. For example, let the major proposition be, Health cannot belong to any disease; and the minor, Disease can belong to any man; *Ergo*, Health cannot belong to any man. This conclusion seems valid, but is not really so. We ought to substitute concrete terms to this effect:—It is impossible that the sick can be well; Any man may be sick; *Ergo*, It is impossible that any man can be well. To the syllogism, now, as stated in these concrete terms, we may object, that the major is not

[a] Analyt. Prior. I. xxxii. p. 47, a. 10-b. 14.

[b] Ibid. I. xxxiii. p. 47, b. 16-40: *αὕτη μὲν οὖν ἡ ἀπάτη γίνεται ἐν τῷ παρὰ μικρόν· ὡς γὰρ οὐδὲν διαφέρον εἰπεῖν τόδε τῷδε ὑπάρχειν, ἢ τόδε τῷδε παντὶ ὑπάρχειν, συγχωροῦμεν.*

M. B. St. Hilaire observes in his note (p. 155): "L'erreur vient uniquement de ce qu'on confond l'universel et l'indeterminé séparés par une nuance très faible d'expression, qu'on ne doit pas cependant négliger." Julius Pacius (p. 264) gives the same explanation at greater length; but the example chosen by Aristotle (*ὁ Ἀριστομένης ἐστὶ διανοητὸς Ἀριστομένης*) appears open to other objections besides.

[c] Analyt. Prior. I. xxxiv, p. 48, a. 1-28.

true. A person who is at the present moment sick may at a future time become well. There is therefore no valid syllogism.[a] When we take the concrete man, we may say with truth that the two contraries, health-sickness, knowledge-ignorance, *may* both alike belong to him; though not to the same individual at the same time.

Again, we must not suppose that we can always find one distinct and separate name belonging to each term. Sometimes one or all of the three terms can only be expressed by an entire phrase or proposition. In such cases it is very difficult to reduce the reasoning into regular syllogism. We may even be deceived into fancying that there are syllogisms without any middle term at all, because there is no single word to express it. For example, let A represent equal to two right angles; B, triangle; C, isosceles. Then we have a regular syllogism, with an explicit and single-worded middle term; A belongs first to B, and then to C through B as middle term (triangle). But how do we know that A belongs to B? We know it by demonstration; for it is a demonstrable truth that every triangle has its three angles equal to two right angles. Yet there is no other more general truth about triangles from which it is a deduction; it belongs to the triangle *per se*, and follows from the fundamental properties of the figure.[b] There is, however, a middle term in the demonstration, though it is not single-worded and explicit; it is a declaratory proposition or a fact. We must not suppose that there can be any demonstration without a middle term, either single-worded or many-worded.

[a] Analyt. Prior. I. xxxiv. p. 48, a. 2-23. See the Scholion of Alexander, p. 181, b. 16-27, Brandis.

[b] Analyt. Prior. I. xxxv. p. 48, a. 30-39: *φανερὸν ὅτι τὸ μέσον οὐχ οὕτως ἀεὶ λεκτέον ὡς τόδε τι, ἀλλ' ἐνίοτε λόγον, ὅπερ συμβαίνει καὶ τοῦ λεχθέντος.* A good Scholion of Philoponus is given, p. 181, b. 28-45, Brand.

When we are reducing any reasoning to a syllogistic form, and tracing out the three terms of which it is composed, we must expose or set out these terms in the nominative case; but when we actually construct the syllogism or put the terms into propositions, we shall find that one or other of the oblique cases, genitive, dative, &c., is required.[a] Moreover, when we say, 'this belongs to that,' or 'this may be truly predicated of that,' we must recollect that there are many distinct varieties in the relation of predicate to subject. Each of the Categories has its own distinct relation to the subject; predication *secundum quid* is distinguished from predication *simpliciter*, simple from combined or compound, &c. This applies to negatives as well as affirmatives.[b] There will be a material difference in setting out the terms of the syllogism, according as the predication is qualified (*secundum quid*) or absolute (*simpliciter*). If it be qualified, the qualification attaches to the predicate, not to the subject: when the major proposition is a qualified predication, we must consider the qualification as belonging, not to the middle term, but to the major term, and as destined to re-appear in the conclusion. If the qualification be attached to the middle term, it cannot appear in the conclusion, and any conclusion that embraces it will not be proved. Suppose the conclusion to be proved is, The wholesome is knowledge *quatenus bonum* or *quod bonum est*; the three terms of the syllogism must stand thus:—

[a] Analyt. Prior. I. xxxvi. p. 48, a. 40-p. 49, a. 5. ἁπλῶς λέγομεν γὰρ τοῦτο κατὰ πάντων, ὅτι τοὺς μὲν ὅρους ἀεὶ θετέον κατὰ τὰς κλήσεις τῶν ὀνομάτων—τὰς δὲ προτάσεις ληπτέον κατὰ τὰς ἑκάστου πτώσεις. Several examples are given of this precept.

[b] Ibid. I. xxxvii. p. 49, a. 6-10. Alexander remarks in the Scholia (p. 183, a. 2) that the distinction between simple and compound predication has already been adverted to by Aristotle in De Interpretatione (see p. 20, b. 35); and that it was largely treated by Theophrastus in his work, Περὶ Καταφάσεως, not preserved.

Major—*Bonum* is knowable, *quatenus bonum* or *quod bonum est.*

Minor—The wholesome is *bonum.*

Ergo — The wholesome is knowable, *quatenus bonum*, &c.

For every syllogism in which the conclusion is qualified, the terms must be set out accordingly.[a]

We are permitted, and it is often convenient, to exchange one phrase or term for another of equivalent signification, and also one word against any equivalent phrase. By doing this, we often facilitate the setting out of the terms. We must carefully note the different meanings of the same substantive noun, according as the definite article is or is not prefixed. We must not reckon it the same term, if it appears in one premiss with the definite article, and in the other without the definite article.[b] Nor is it the same proposition to say B is predicable of C (indefinite), and B is predicable of *all* C (universal). In setting out the syllogism, it is not sufficient that the major premiss should be indefinite; the major premiss must be universal; and the minor premiss also, if the conclusion is to be universal. If the major premiss be universal, while the minor premiss is only affirmative indefinite, the conclusion cannot be universal, but will be no more than indefinite, that is, counting as particular.[c]

[a] Analyt. Prior. I. xxxviii. p. 49, a. 11-b. 2. *φανερὸν οὖν ὅτι ἐν τοῖς ἐν μέρει συλλογισμοῖς οὕτω ληπτέον τοὺς ὅρους.* Alexander explains *οἱ ἐν μέρει συλλογισμοί* (Schol. p. 183, b. 32, Br.) to be those in which the predicate has a qualifying adjunct tacked to it.

[b] Analyt. Prior. I. xxxix.-xl. p. 49, b. 3-13. *οὐ ταὐτόν ἐστι τὸ εἶναι τὴν ἡδονὴν ἀγαθὸν καὶ τὸ εἶναι τὴν ἡδονὴν τὸ ἀγαθόν*, &c.

[c] Ib. I. xli. p. 49, b. 14-32. The Scholion of Alexander (Schol. p. 184, a. 22-40) alludes to the peculiar mode, called by Theophrastus *κατὰ πρόσληψιν*, of stating the premisses of the syllogism: two terms only, the major and the middle, being enunciated, while the third or minor was included potentially, but not enunciated. Theophrastus however did not recognize the distinction of

There is no fear of our being misled by setting out a particular case for the purpose of the general demonstration; for we never make reference to the specialties of the particular case, but deal with it as the geometer deals with the diagram that he draws. He calls the line A B, straight, a foot long, and without breadth, but he does not draw any conclusion from these assumptions. All that syllogistic demonstration either requires or employs, is, terms that are related to each other either as whole to part or as part to whole. Without this, no demonstration can be made: the exposition of the particular case is intended as an appeal to the senses, for facilitating the march of the student, but is not essential to demonstration.*

Aristotle reminds us once more of what he had before said, that in the Second and Third figures, not all varieties of conclusion are possible, but only some varieties; accordingly, when we are reducing a piece of reasoning to the syllogistic form, the nature of the conclusion will inform us which of the three figures we must look for. In the case where the question debated relates to a definition, and the reasoning which we are trying to reduce turns upon one part only of that definition, we must take care to look for our three terms only in regard to

meaning to which Aristotle alludes in this chapter. He construed as an universal minor, what Aristotle treats as only an indefinite minor. The liability to mistake the Indefinite for an Universal is here again adverted to.

* Analyt. Prior. I. xli. p. 50, a. 1: *τῷ δ' ἐκτίθεσθαι οὕτω χρώμεθα ὥσπερ καὶ τῷ αἰσθάνεσθαι, τὸν μανθάνοντα λέγοντες· οὐ γὰρ οὕτως ὡς ἄνευ τούτων οὐχ οἷόν τ' ἀποδειχθῆναι, ὥσπερ ἐξ ὧν ὁ συλλογισμός.*

This chapter is a very remarkable statement of the Nominalistic doctrine; perceiving or conceiving all the real specialties of a particular case, but attending to, or reasoning upon, only a portion of them.

Plato treats it as a mark of the inferior scientific value of Geometry, as compared with true and pure Dialectic, that the geometer cannot demonstrate through Ideas and Universals alone, but is compelled to help himself by visible particular diagrams or illustrations. (Plato, Repub. vi. pp. 510-511, vii. p. 533, C.)

that particular part, and not in regard to the whole definition.[a] All the modes of the Second and Third figures can be reduced to the First, by conversion of one or other of the premisses; except the fourth mode (*Baroco*) of the Second, and the fifth mode (*Bocardo*) of the Third, which can be proved only by *Reductio ad Absurdum*.[b]

No syllogisms from an Hypothesis, however, are reducible to any of the three figures; for they are not proved by syllogism alone: they require besides an extra-syllogistic assumption granted or understood between speaker and hearer. Suppose an hypothetical proposition given, with antecedent and consequent: you may perhaps prove or refute by syllogism either the antecedent separately, or the consequent separately, or both of them separately; but you cannot directly either prove or refute by syllogism the conjunction of the two asserted in the hypothetical. The speaker must ascertain beforehand that this will be granted to him; otherwise he cannot proceed.[c] The same is true about the procedure by *Reductio ad Absurdum*, which involves an hypothesis over and above the syllogism. In employing such *Reductio ad Absurdum*, you prove syllogistically a certain conclusion from certain premisses; but the conclusion is manifestly false; therefore, one at least of the premisses from which it follows must be false also. But if this reasoning is to have force, the hearer must know *aliunde* that the conclusion is false; your syllogism has not shewn it to be false, but has shewn it to be hypothetically true; and unless the hearer is prepared to grant the conclusion to be false, your purpose is

[a] Analyt. Prior. I. xlii., xliii. p. 50, a. 5-15. I follow here the explanation given by Philoponus and Julius Pacius, which M. Barthélemy St. Hilaire adopts. But the illustrative example given by Aristotle himself (the definition of *water*) does not convey much instruction.

[b] Ibid. xlv. p. 50, b. 5-p. 51, b. 2.

[c] Ibid. xliv. p. 50, a. 16-28.

not attained. Sometimes he will grant it without being expressly asked, when the falsity is glaring: *e.g.* you prove that the diagonal of a square is incommensurable with the side, because if it were taken as commensurable, an odd number might be shewn to be equal to an even number. Few disputants will hesitate to grant that this conclusion is false, and therefore that its contradictory is true; yet this last (viz. that the contradictory is true) has not been proved syllogistically; you must assume it by hypothesis, or depend upon the hearer to grant it.[a]

Here Aristotle expressly reserves for separate treatment the general subject of Syllogisms from Hypothesis.[b]

[a] Analyt. Prior. I. xliv. p. 50, a. 29-38. See above, xxiii. p. 40, a. 25.

M. Barthélemy St. Hilaire remarks in the note to his translation of the Analytica Priora (p. 178): "Ce chapitre suffit à prouver qu'Aristote a distingué très-nettement les syllogismes par l'absurde, des syllogismes hypothétiques. Cette dernière dénomination est tout à fait pour lui ce qu'elle est pour nous." Of these two statements, I think the *latter* is more than we can venture to affirm, considering that the general survey of hypothetical syllogisms, which Aristotle intended to draw up, either never was really completed, or at least has perished: the *former* appears to me incorrect. Aristotle decidedly reckons the *Reductio ad Impossibile* among hypothetical proofs. But he understands by *Reductio ad Impossibile* something rather wider than what the moderns understand by it. It now means only, that you take the contradictory of the conclusion together with one of the premisses, and by means of these two demonstrate a conclusion contradictory or contrary to the other premiss. But Aristotle understood by it this, and something more besides, namely, whenever, by taking the contradictory of the conclusion, together with some other incontestable premiss, you demonstrate, by means of the two, some new conclusion notoriously false. What I here say, is illustrated by the very example which he gives in this chapter. The incommensurability of the diagonal (with the side of the square) is demonstrated by *Reductio ad Impossibile*; because if it be supposed commensurable, you may demonstrate that an odd number is equal to an even number; a conclusion which every one will declare to be inadmissible, but which is not the contradictory of either of the premisses whereby the true proposition was demonstrated.

[b] The expressions of Aristotle here are remarkable, Analyt. Prior. I. xliv. p. 50, a. 39-b. 3: *πολλοὶ δὲ καὶ ἕτεροι περαίνονται ἐξ ὑποθέσεως, οὓς ἐπισκέψασθαι δεῖ καὶ διασημῆναι καθαρῶς. τίνες μὲν οὖν αἱ διαφοραὶ τούτων, καὶ πόσαχῶς γίνεται τὸ ἐξ ὑποθέσεως, ὕστερον ἐροῦμεν· νῦν δὲ τοσοῦτον ἡμῖν ἔστω φανερόν, ὅτι οὐκ*

In the last chapter of the first book of the Analytica Priora, Aristotle returns to the point which we have already considered in the treatise De Interpretatione, viz. what is really a *negative* proposition; and how the adverb of negation must be placed in order to constitute one. We must place this adverb immediately before the copula and in conjunction with the copula: we must not place it after the copula and in conjunction with the predicate; for, if we do so, the proposition resulting will not be negative but affirmative (ἐκ μεταθέσεως, *by transposition*, according to the technical term introduced afterwards by Theophrastus). Thus of the four propositions:

1. Est bonum.	2. Non est bonum.
4. Non est non bonum.	3. Est non bonum.

No. 1 is affirmative; No. 3 is affirmative (ἐκ μεταθέσεως); Nos. 2 and 4 are negative. Wherever No. 1 is predicable, No. 4 will be predicable also; wherever No. 3 is predicable, No. 2 will be predicable also—but in neither case *vice versâ*.* Mistakes often flow from incorrectly setting out the two contradictories.

ἔστιν ἀναλύειν εἰς τὰ σχήματα τοὺς τοιούτους συλλογισμούς. καὶ δι' ἣν αἰτίαν, εἰρήκαμεν.

Syllogisms from Hypothesis were many and various, and Aristotle intended to treat them in a future treatise; but all that concerns the present treatise, in his opinion, is, to show that none of them can be reduced to the three Figures. Among the Syllogisms from Hypothesis, two varieties recognized by Aristotle (besides οἱ διὰ τοῦ ἀδυνάτου) were οἱ κατὰ μετάληψιν and οἱ κατὰ ποιότητα. The same proposition which Aristotle entitles κατὰ μετάληψιν, was afterwards designated by the Stoics κατὰ πρόσληψιν (Alexander ap. Schol. p. 178, b. 6-24).

It seems that Aristotle never realized this intended future treatise on Hypothetical Syllogisms; at least Alexander did not know it. The subject was handled more at large by Theophrastus and Eudêmus after Aristotle (Schol. p. 184, b. 45, Br.; Boethius, De Syllog. Hypothetico, pp. 606-607); and was still farther expanded by Chrysippus and the Stoics.

Compare Prantl, Geschichte der Logik, I. pp. 295, 377, seq. He treats the Hypothetical Syllogism as having no logical value, and commends Aristotle for declining to develop or formulate it; while Ritter (Gesch. Phil. iii. p. 93), and, to a certain extent, Ueberweg (System der Logik, sect. 121, p. 326), consider this to be a defect in Aristotle.

* Analyt. Prior. I. xlvi. p. 51, b. 5, ad finem. See above, Chap. IV. p. 170, seq.

CHAPTER VI.

ANALYTICA PRIORA II.

THE Second Book of the Analytica Priora seems conceived with a view mainly to Dialectic and Sophistic, as the First Book bore more upon Demonstration.[a] Aristotle begins the Second Book by shortly recapitulating what he had stated in the First; and then proceeds to touch upon some other properties of the Syllogism. Universal syllogisms (those in which the conclusion is universal) he says, have always more conclusions than one; particular syllogisms sometimes, but not always, have more conclusions than one. If the conclusion be universal, it may always be converted —*simply*, when it is negative, or *per accidens*, when it is affirmative; and its converse thus obtained will be proved by the same premisses. If the conclusion be particular, it will be convertible simply when affirmative, and its converse thus obtained will be proved by the same premisses; but it will not be convertible at all when negative, so that the conclusion proved will be only itself singly.[b] Moreover, in the universal syllogisms of the First figure (*Barbara*, *Celarent*), any of the particulars comprehended under the minor term may be substituted in place of the minor term as subject of the conclusion, and the proof will hold good in regard to them. So, again, all or any of the particulars comprehended in the middle term may be introduced

[a] This is the remark of the ancient Scholiasts. See Schol. p. 188, a. 44, b. 11.

[b] Analyt. Prior. II. i. p. 53, a. 3-14.

as subject of the conclusion in place of the minor term; and the conclusion will still remain true. In the Second figure, the change is admissible only in regard to those particulars comprehended under the subject of the conclusion or minor term, and not (at least upon the strength of the syllogism) in regard to those comprehended under the middle term. Finally, wherever the conclusion is particular, the change is admissible, though not by reason of the syllogism, in regard to particulars comprehended under the middle term; it is not admissible as regards the minor term, which is itself particular.[a]

Aristotle has hitherto regarded the Syllogism with a view to its *formal* characteristics: he now makes an important observation which bears upon its *matter*. Formally speaking, the two premisses are always assumed to be true; but in any real case of syllogism (form and matter combined) it is possible that either one or both may be false. Now, Aristotle remarks that if both the premisses are true (the syllogism being correct in form), the conclusion must of necessity be true; but that if either or both the premisses are false, the conclusion need not necessarily be false likewise. The premisses being false, the conclusion may nevertheless be true; but it will not be true because of or by reason of the premisses.[b]

[a] Analyt. Prior. II. i. p. 53, a. 14-35. M. Barthélemy St. Hilaire, following Pacius, justly remarks (note, p. 203 of his translation) that the rule as to particulars breaks down in the cases of *Baroco*, *Disamis*, and *Bocardo*.

On the chapter in general he remarks (note, p. 204):—"Cette théorie des conclusions diverses, soit patentes soit cachées, d'un même syllogisme, est surtout utile en dialectique, dans la discussion; où il faut faire la plus grande attention à ce qu'on accorde à l'adversaire, soit explicitement, soit implicitement." This illustrates the observation cited in the preceding note from the Scholiasts.

[b] Analyt. Prior. II. ii. p. 53, b. 5-10: *ἐξ ἀληθῶν μὲν οὖν οὐκ ἔστι ψεῦδος συλλογίσασθαι, ἐκ ψευδῶν δ' ἔστιν ἀληθές, πλὴν οὐ διότι ἀλλ' ὅτι·*

First, he would prove that if the premisses be true, the conclusion must be true also; but the proof that he gives does not seem more evident than the *probandum* itself. Assume that if A exists, B must exist also: it follows from hence (he argues) that if B does not exist, neither can A exist; which he announces as a *reductio ad absurdum*, seeing that it contradicts the fundamental supposition of the existence of A.[a] Here the *probans* is indeed equally evident with the *probandum*, but not at at all more evident; one who disputes the latter, will dispute the former also. Nothing is gained in the way of proof by making either of them dependent on the other. Both of them are alike self-evident; that is, if a man hesitates to admit either of them, you have no means of removing his scruples except by inviting him to try the general maxim upon as many particular cases as he chooses, and to see whether it does not hold good without a single exception.

In regard to the case here put forward as illustration, Aristotle has an observation which shews his anxiety to maintain the characteristic principles of the Syllogism; one of which principles he had declared to be—That nothing less than three terms and two propositions, could warrant the inferential step from premisses to conclusion. In the present case he assumed, If A exists, then B must exist; giving only one premiss as ground for the inference. This (he adds) does not contravene what has been laid down before; for A in the case before us represents two propositions con-

τοῦ γὰρ διότι οὐκ ἔστιν ἐκ ψευδῶν συλλογισμός· δι' ἣν δ' αἰτίαν, ἐν τοῖς ἑπομένοις λεχθήσεται.

The true conclusion is not true by reason of these false premisses, but by reason of certain other premisses which are true, and which may be produced to demonstrate it. Compare Analyt. Poster. I. ii. p. 71, b. 19.

[a] Analyt. Prior. II. ii. p. 53, b. 11-16.

ceived in conjunction.[a] Here he has given the type of hypothetical reasoning; not recognizing it as a variety *per se*, nor following it out into its different forms (as his successors did after him), but resolving it into the categorical syllogism.[b] He however conveys very clearly the cardinal principle of all hypothetical inference—That if the antecedent be true, the consequent must be true also, but not *vice versâ*; if the consequent be false, the antecedent must be false also, but not *vice versâ*.

Having laid down the principle, that the conclusion may be true, though one or both the premisses are false, Aristotle proceeds, at great length, to illustrate it in its application to each of the three syllogistic figures.[c] No portion of the Analytica is traced out more perspicuously than the exposition of this most important logical doctrine.

It is possible (he then continues, again at considerable length) to invert the syllogism and to demonstrate *in a circle*. That is, you may take the conclusion as premiss for a new syllogism, together with one of the old premisses, transposing its terms; and thus you may demonstrate the other premiss. You may do this successively, first with the major, to demonstrate the minor; next, with the minor, to demonstrate the major. Each of the premisses will thus in turn be made a demonstrated conclusion; and the circle will be complete. But this can be done perfectly only in *Barbara*, and when, besides, all the three terms of the syllogism reciprocate with each

[a] Ibid. b. 16-25. τὸ οὖν Α ὥσπερ ἓν κεῖται, δύο προτάσεις συλληφθεῖσαι.

[b] Aristotle, it should be remarked, uses the word κατηγορικός, not in the sense which it subsequently acquired, as the antithesis of ὑποθετικός in application to the proposition and syllogism, but in the sense of affirmative as opposed to στερητικός.

[c] Analyt. Prior. II. ii.-iv. p. 53, b. 26-p. 57, b. 17. At the close (p. 57, a. 36-b. 17), the general doctrine is summed up.

other, or are co-extensive in import; so that each of the two premisses admits of being simply converted. In all other cases, the process of circular demonstration, where possible at all, is more or less imperfect.[a]

Having thus shown under what conditions the conclusion can be employed for the demonstration of the premisses, Aristotle proceeds to state by what transformation it can be employed for the refutation of them. This he calls *converting* the syllogism; a most inconvenient use of the term *convert* (ἀντιστρέφειν), since he had already assigned to that same term more than one other meaning, distinct and different, in logical procedure.[b] What it here means is *reversing* the conclusion, so as to exchange it either for its contrary, or for its contradictory; then employing this reversed proposition as a new premiss, along with one of the previous premisses, so as to disprove the other of the previous premisses—*i.e.* to prove its contrary or contradictory. The result will here be different, according to the manner in which the conclusion is reversed; according as you exchange it for its contrary or its contradictory. Suppose that the syllogism demonstrated is: A belongs to all B, B belongs to all C; *Ergo*, A belongs to all C (*Barbara*). Now, if we reverse this conclusion by taking its *contrary*, A belongs to no C, and if we combine this as a new premiss with the major of the former syllogism, A belongs to all B, we shall obtain as a conclusion B belongs to no C; which is the *contrary* of the minor, in the form *Camestres*. If, on the other hand, we reverse the conclusion by taking its *contradictory*, A does not belong to all C, and combine this with the same major, we shall have as conclusion, B does not

[a] Analyt. Prior. II. v.-viii. p. 57, b. 18-p. 59, a. 35.

[b] Schol. (ad Analyt. Prior. p. 59, b. 1), p. 190, b. 20, Brandis. Compare the notes of M. Barthélemy St. Hilaire, pp. 55, 242.

belong to all C; which is the *contradictory* of the minor, and in the form *Baroco:* though in the one case as in the other the minor is disproved. The major is *contradictorily* disproved, whether it be the contrary or the contradictory of the conclusion that is taken along with the minor to form the new syllogism; but still the form varies from *Felapton* to *Bocardo*. Aristotle shows farther how the same process applies to the other modes of the First, and to the modes of the Second and Third figures.[a] The new syllogism, obtained by this process of reversal, is always in a different figure from the syllogism reversed. Thus syllogisms in the First figure are reversed by the Second and Third; those in the Second, by the First and Third; those in the Third, by the First and Second.[b]

Of this reversing process, one variety is what is called the *Reductio ad Absurdum;* in which the conclusion is reversed by taking its contradictory (never its contrary), and then joining this last with one of the premisses, in order to prove the contradictory or contrary of the other premiss.[c] The *Reductio ad Absurdum* is distinguished from the other modes of reversal by these characteristics: (1) That it takes the contradictory, and not the contrary, of the conclusion; (2) That it is destined to meet the case where an opponent declines to admit the conclusion; whereas the other cases of reversion are only intended as confirmatory evidence towards a person who already admits the conclusion; (3) That it does not appeal to or require any concession on the part of the opponent; for if he declines to admit the conclusion, you presume, as a matter of course, that he must adhere to the contradictory of the con-

[a] Analyt. Prior. II. viii.-x. p. 59, b. 1-p. 61, a. 4.
[b] Ibid. x. p. 61, a. 7-15. [c] Ibid. xi. p. 61, a. 18, seq.

clusion; and you therefore take this contradictory for granted (without asking his concurrence) as one of the bases of a new syllogism; (4) That it presumes as follows:—When, by the contradictory of the conclusion joined with one of the premisses, you have demonstrated the opposite of the other premiss, the original conclusion itself is shown to be beyond all impeachment on the score of form, *i.e.* beyond impeachment by any one who admits the premisses. You assume to be true, for the occasion, the very proposition which you mean finally to prove false; your purpose in the new syllogism is, not to demonstrate the original conclusion, but to prove it to be true by demonstrating its contradictory to be false.[a]

By the *Reductio ad Absurdum* you can in all the three figures demonstrate all the four varieties of conclusion, universal and particular, affirmative and negative; with the single exception, that you cannot by this method demonstrate in the First figure the Universal Affirmative.[b] With this exception, every true conclusion admits of being demonstrated by either of the two ways, either directly and ostensively, or by reduction to the impossible.[c]

In the Second and Third figures, though not in the First, it is possible to obtain conclusions even from two premisses which are contradictory or contrary to each other; but the conclusion will, as a matter of course, be a self-contradictory one. Thus if in the Second figure you have the two premisses—All Science is

[a] Analyt. Prior. II. xi. p. 62, a. 11: *φανερὸν οὖν ὅτι οὐ τὸ ἐναντίον, ἀλλὰ τὸ ἀντικείμενον, ὑποθετέον ἐν ἅπασι τοῖς συλλογισμοῖς. οὕτω γὰρ τὸ ἀναγκαῖον ἔσται καὶ τὸ ἀξίωμα ἔνδοξον. εἰ γὰρ κατὰ παντὸς ἡ κατάφασις ἢ ἀπόφασις, δειχθέντος ὅτι οὐχ ἡ ἀπόφασις, ἀνάγκη τὴν κατάφασιν ἀληθεύεσθαι.* See Scholia, p. 190, b. 40, seq., Brand.

[b] Analyt. Prior. II. xi. p. 61, a. 35-p. 62, b. 10; xii. p. 62, a. 21. Alexander ap. Schol. p. 191, a. 17-36, Brand.

[c] Ibid. xiv. p. 63, b. 12-21.

good; No Science is good—you get the conclusion (in *Camestres*), No Science is Science. In opposed propositions, the same predicate must be affirmed and denied of the same subject in one of the three different forms—All and None, All and Not All, Some and None. This shows why such conclusions cannot be obtained in the First figure; for it is the characteristic of that figure that the middle term must be predicate in one premiss, and subject in the other.[a] In dialectic discussion it will hardly be possible to get contrary or contradictory premisses conceded by the adversary immediately after each other, because he will be sure to perceive the contradiction: you must mask your purpose by asking the two questions not in immediate succession, but by introducing other questions between the two, or by other indirect means as suggested in the Topica.[b]

Aristotle now passes to certain general heads of Fallacy, or general liabilities to Error, with which the syllogizing process is beset. What the reasoner undertakes is, to demonstrate the conclusion before him, and to demonstrate it in the natural and appropriate way; that is, from premisses both more evident in themselves and logically prior to the conclusion. Whenever he fails thus to demonstrate, there is error of some kind; but he may err in several ways: (1) He may produce a defective or informal syllogism; (2) His premisses may be more unknowable than his conclusion, or equally

[a] Analyt. Prior. II. xv. p. 63, b. 22–p. 64, a. 32. Aristotle here declares *Sub-contraries* (as they were later called),—Some men are wise, Some men are not wise,—to be opposed only in expression or verbally (*κατὰ τὴν λέξιν μόνον*).

[b] Analyt. Prior. II. xv. p. 64, a. 33-37. See Topica, VIII. i. p. 155, a. 26; Julius Pacius, p. 372, note. In the Topica, Aristotle suggests modes of concealing the purpose of the questioner and driving the adversary to contradict himself: *ἐν δὲ τοῖς Τοπικοῖς παραδίδωσι μεθόδους τῶν κρύψεων δι' ἃς τοῦτο δοθήσεται* (Schol. p. 192, a. 18, Br.). Compare also Analyt. Prior. II. xix. p. 66, a. 33.

unknowable; (3) His premisses, instead of being logically prior to the conclusion, may be logically posterior to it.[a]

Distinct from all these three, however, Aristotle singles out and dwells upon another mode of error, which he calls *Petitio Principii*. Some truths, the *principia*, are by nature knowable through or in themselves, others are knowable only through other things. If you confound this distinction, and ask or assume something of the latter class as if it belonged to the former, you commit a *Petitio Principii*. You may commit it either by assuming at once that which ought to be demonstrated, or by assuming, as if it were a *principium*, something else among those matters which in natural propriety would be demonstrated by means of a *principium*. Thus, there is (let us suppose) a natural propriety that C shall be demonstrated through A; but you, overlooking this, demonstrate B through C, and A through B. By thus inverting the legitimate order, you do what is tantamount to demonstrating A through itself; for your demonstration will not hold unless you assume A at the beginning, in order to arrive at C. This is a mistake made not unfrequently, and especially by some who define parallel lines; for they give a definition which cannot be understood unless parallel lines be presupposed.[b]

When the problem is such, that it is uncertain whether A can be predicated either of C or of B, if

[a] Analyt. Prior. II. xvi. p. 64, b. 30-35: *καὶ γὰρ εἰ ὅλως μὴ συλλογίζεται, καὶ εἰ δι' ἀγνωστοτέρων ἢ ὁμοίως ἀγνώστων, καὶ εἰ διὰ τῶν ὑστέρων τὸ πρότερον· ἡ γὰρ ἀπόδειξις ἐκ πιστοτέρων τε καὶ προτέρων ἐστίν. . . . τὰ μὲν δι' αὑτῶν πέφυκε γνωρίζεσθαι, τὰ δὲ δι' ἄλλων.*

[b] Analyt. Prior. II. xvi. p. 64, b. 33–p. 65, a. 9. *Petere principium* is, in the phrase of Aristotle, not *τὴν ἀρχὴν αἰτεῖσθαι*, but *τὸ ἐν ἀρχῇ αἰτεῖσθαι*, or *τὸ ἐξ ἀρχῆς αἰτεῖσθαι* (xvi. p. 64, b. 28, 34).

you then assume that A is predicable of B, you may perhaps not commit *Petitio Principii*, but you certainly fail in demonstrating the problem; for no demonstration will hold where the premiss is equally uncertain with the conclusion. But if, besides, the case be such, that B is identical with C, that is, either co-extensive and reciprocally convertible with C, or related to C as genus or species,—in either of these cases you commit *Petitio Principii* by assuming that A may be predicated of B.[a] For seeing that B reciprocates with C, you might just as well demonstrate that A is predicable of B, because it is predicable of C; that is, you might demonstrate the major premiss by means of the minor and the conclusion, as well as you can demonstrate the conclusion by means of the major and the minor premiss. If you cannot so demonstrate the major premiss, this is not because the structure of the syllogism forbids it, but because the predicate of the major premiss is more extensive than the subject thereof. If it be co-extensive and convertible with the subject, we shall have a circular proof of three propositions in which each may be alternately premiss and conclusion. The like will be the case, if the *Petitio Principii* is in the minor premiss and not in the major. In the First syllogistic figure it may be in either of the premisses; in the Second figure it can only be in the minor premiss, and that only in one mode (*Camestres*) of the figure.[b] The essence of *Petitio Principii* consists in this,

[a] Analyt. Pr. II. xvi. p. 65, a. 1-10.

[b] Ibid. p. 65, a. 10: *εἰ οὖν τις, ἀδήλου ὄντος ὅτι τὸ Α ὑπάρχει τῷ Γ, ὁμοίως δὲ καὶ ὅτι τῷ Β, αἰτοῖτο τῷ Β ὑπάρχειν τὸ Α, οὔπω δῆλον εἰ τὸ ἐν ἀρχῇ αἰτεῖται, ἀλλ' ὅτι οὐκ ἀποδείκνυσι, δῆλον· οὐ γὰρ ἀρχὴ ἀποδείξεως τὸ ὁμοίως ἄδηλον. εἰ μέντοι τὸ Β πρὸς τὸ Γ οὕτως ἔχει ὥστε ταὐτὸν εἶναι, ἢ δῆλον ὅτι ἀντιστρέφουσιν, ἢ ὑπάρχει θάτερον θατέρῳ, τὸ ἐν ἀρχῇ αἰτεῖται. καὶ γὰρ ἄν, ὅτι τῷ Β τὸ Α ὑπάρχει, δι' ἐκείνων δεικνύοι, εἰ ἀντιστρέφοι. νῦν δὲ τοῦτο κωλύει, ἀλλ' οὐχ ὁ τρόπος. εἰ δὲ τοῦτο ποιοῖ, τὸ εἰρημένον ἂν ποιοῖ καὶ ἀντιστρέφοι ὡς διὰ τριῶν.*

This chapter, in which Aristotle

that you exhibit as true *per se* that which is not really true *per se*.[a] You may commit this fault either in Demonstration, when you assume for true what is not really true, or in Dialectic, when you assume as probable and conformable to authoritative opinion what is not really so.[b]

declares the nature of Petitio Principii, is obscure and difficult to follow. It has been explained at some length, first by Philoponus in the Scholia (p. 192, a. 35, b. 24), afterwards by Julius Pacius (p. 376, whose explanation is followed by M. B. St. Hilaire, p. 288), and by Waitz (I. p. 514). But the translation and comment given by Mr. Poste appear to me the best: "Assuming the conclusion to be affirmative, let us examine a syllogism in Barbara:—

All B is A.
All C is B.
∴ All C is A.

And let us first suppose that the major premiss is a Petitio Principii; *i. e.* that the proposition *All B is A* is identical with the proposition *All C is A*. This can only be because the terms B and C are identical. Next, let us suppose that the minor premiss is a Petitio Principii; *i. e.* that the proposition *All C is B* is identical with the proposition *All C is A*. This can only be because B and A are identical. The identity of the terms is, their convertibility or their sequence (*ὑπάρχει, ἕπεται*). This however requires some limitation; for as the major is always predicated (*ὑπάρχει, ἕπεται*) of the middle, and the middle of the minor, if this were enough to constitute Petitio Principii, every syllogism with a problematical premiss would be a Petitio Principii." (See the Appendix A, pp. 178-183, attached to Mr. Poste's edition of Aristotle's Sophistici Elenchi.)

Compare, about Petitio Principii, Aristot. Topic. VIII. xiii. p. 162, b. 34, in which passage Aristotle gives to the fallacy called Petitio Principii a still larger sweep than what he assigns to it in the Analytica Priora. Mr. Poste's remark is perfectly just, that according to the above passage in the Analytica, every syllogism with a problematical (*i. e.* real as opposed to verbal) premiss would be a Petitio Principii; that is, all real deductive reasoning, in the syllogistic form, would be a Petitio Principii. To this we may add, that, from the passage above referred to in the Topica, all inductive reasoning also (reasoning from parts to whole) would involve Petitio Principii.

Mr. Poste's explanation of this difficult passage brings into view the original and valuable exposition made by Mr. John Stuart Mill of the Functions and Logical Value of the Syllogism.—System of Logic, Book II. ch. iii. sect. 2:—"It must be granted, that in every syllogism, considered as an argument to prove the conclusion, there is a Petitio Principii," &c.

Petitio Principii, if ranked among the Fallacies, can hardly be extended beyond the first of the five distinct varieties enumerated in the Topica, VIII. xiii.

[a] Analyt. Prior. II. xvi. p. 65, a. 23-27: *τὸ γὰρ ἐξ ἀρχῆς τί δύναται, εἴρηται ἡμῖν, ὅτι τὸ δι' αὑτοῦ δεικνύναι τὸ μὴ δι' αὑτοῦ δῆλον.—τοῦτο δ' ἔστι, τὸ μὴ δεικνύναι.*

The meaning of some lines in this chapter (p. 65, a. 17-18) is to me very obscure, after all the explanations of commentators.

[b] Ibid. p. 65, a. 35; Topic. VIII. xiii. p. 162, b. 31.

We must be careful to note, that when Aristotle speaks of a *principium* as knowable in itself, or true in itself, he does not mean that it is innate, or that it starts up in the mind ready made without any gradual building up or preparation. What he means is, that it is not demonstrable deductively from anything else prior or more knowable by nature than itself. He declares (as we shall see) that *principia* are acquired, and mainly by Induction.

Next to *Petitio Principii*, Aristotle indicates another fallacious or erroneous procedure in dialectic debate; misconception or misstatement of the real grounds on which a conclusion rests—*Non per Hoc*. You may impugn the thesis (set up by the respondent) directly, by proving syllogistically its contrary or contradictory; or you may also impugn it indirectly by *Reductio ad Absurdum*; *i.e.* you prove by syllogism some absurd conclusion, which you contend to be necessarily true, if the thesis is admitted. Suppose you impugn it in the first method, or directly, by a syllogism containing only two premisses and a conclusion: *Non per Hoc* is inapplicable here, for if either premiss is disallowed, the conclusion is unproved; the respondent cannot meet you except by questioning one or both of the premisses of your impugning syllogism.* But if you proceed by the second method or indirectly, *Non per Hoc* may become applicable; for there may then be more

* Analyt. Prior. II. xvii. p. 65, b. 4: *ὅταν ἀναιρέθῃ τι δεικτικῶς διὰ τῶν* A, B, Γ, &c.; xviii. 66, a. 17: *ἢ γὰρ ἐκ τῶν δύο προτάσεων ἢ ἐκ πλειόνων πᾶς ἐστὶ συλλογισμός· εἰ μὲν οὖν ἐκ τῶν δύο, τούτων ἀνάγκη τὴν μὲν ἑτέραν ἢ καὶ ἀμφοτέρας εἶναι ψευδεῖς·* &c. Whoever would understand this difficult chapter xvii., will do well to study it with the notes of Julius Pacius (p. 360), and also the valuable exposition of Mr. Poste, who has extracted and illustrated it in Appendix B. (p. 190) of the notes to his edition of the Sophistici Elenchi. The six illustrative diagrams given by Julius Pacius afford great help, though the two first of them appear to me incorrectly printed, as to the brackets connecting the different propositions.

than two premisses, and he may, while granting that the absurd conclusion is correctly made out, contend that the truth or falsehood of his thesis is noway implicated in it. He declares (in Aristotle's phrase) that the absurdity or falsehood just made out does not follow as a consequence from his thesis, but from other premisses independent thereof; that it would stand equally proved, even though his thesis were withdrawn.[a] In establishing the falsehood or absurdity you must take care that it shall be one implicated with or dependent upon his thesis. It is this last condition that he (the respondent) affirms to be wanting.[b]

Aristotle tells us that this was a precaution which the defender of a thesis was obliged often to employ in dialectic debate, in order to guard against abuse or misapplication of *Reductio ad Absurdum* on the part of opponents, who (it appears) sometimes took credit for success, when they had introduced and demonstrated some absurd conclusion that had little or no connection with the thesis.[c] But even when the absurd conclusion is connected with the thesis continuously, by a series of

[a] Analyt. Prior. II. xvii. p. 65, a. 38, b. 14, p. 66, a. 2, 7: *τὸ μὴ παρὰ τοῦτο συμβαίνειν τὸ ψεῦδος—τοῦ μὴ παρὰ τὴν θέσιν εἶναι τὸ ψεῦδος—οὐ παρὰ τὴν θέσιν συμβαίνει τὸ ψεῦδος—οὐκ ἂν εἴη παρὰ τὴν θέσιν.*

Instead of the preposition *παρά*, Aristotle on two occasions employs *διά—οὕτω γὰρ ἔσται διὰ τὴν ὑπόθεσιν*—p. 65, b. 33, p. 66, a. 3.

The preposition *παρά*, with acc. case, means *on account of, owing to*, &c. See Matthiæ and Kühner's Grammars, and the passage of Thucydides i. 141: *καὶ ἕκαστος οὐ παρὰ τὴν ἑαυτοῦ ἀμέλειαν οἴεται βλάψειν, μέλειν δέ τινι καὶ ἄλλῳ ὑπὲρ ἑαυτοῦ τι προϊδεῖν*, &c., which I transcribe partly on account of Dr. Arnold's note, who says about *παρὰ* here:—"This is exactly expressed in vulgar English, *all along of* his own neglect, *i. e.* owing to his own neglect."

[b] Analyt. Prior. II. xvii. p. 65, b. 33: *δεῖ πρὸς τοὺς ἐξ ἀρχῆς ὅρους συνάπτειν τὸ ἀδύνατον· οὕτω γὰρ ἔσται διὰ τὴν ὑπόθεσιν.*

[c] Analyt. Prior. II. xvii. p. 65, a. 38: *ὃ πολλάκις ἐν τοῖς λόγοις εἰώθαμεν λέγειν*, &c. That the *Reductio ad Absurdum* was sometimes made to turn upon matters wholly irrelevant, we may see from the illustration cited by Aristotle, p. 65, b. 17.

propositions each having a common term with the preceding, in either the ascending or the descending scale, we have here more than three propositions, and the absurd conclusion may perhaps be proved by the other premisses, without involving the thesis. In this case the respondent will meet you with *Non per Hoc*;[a] he will point out that his thesis is not one of the premisses requisite for demonstrating your conclusion, and is therefore not overthrown by the absurdity thereof. Perhaps the thesis may be false, but you have not shown it to be so, since it is not among the premisses necessary for proving your *absurdum*. An *absurdum* may sometimes admit of being demonstrated by several lines of premisses,[b] each involving distinct falsehood. Every false conclusion implies falsity in one or more syllogistic or prosyllogistic premisses that have preceded it, and is *owing to* or occasioned by this first falsehood.[c]

In impugning the thesis and in extracting from your opponent the proper concessions to enable you to do so, you will take care to put the interrogations in such form and order as will best disguise the final conclusion

[a] In this chapter of the Analytica, Aristotle designates the present fallacy by the title, *Non per Hoc*, *οὐ παρὰ τοῦτο—οὐ παρὰ τὴν θέσιν συμβαίνει τὸ ψεῦδος*. He makes express reference to the Topica (*i. e.* to the fifth chapter of Sophist. Elenchi, which he regards as part of the Topica), where the same fallacy is designated by a different title, *Non Causa pro Causâ*, *τὸ ἀναίτιον ὡς αἴτιον τιθέναι*. We see plainly that this chapter of the Anal. Priora was composed later than the fifth chapter of Soph. El.; whether this is true of the two treatises as wholes is not so certain. I think it probable that the change of designation for the same fallacy was deliberately adopted. It is an improvement to dismiss the vague term Cause.

[b] Analyt. Prior. II. xvii. p. 66, a. 11: *ἐπεὶ ταὐτό γε ψεῦδος συμβαίνειν διὰ πλειόνων ὑποθέσεων οὐδὲν ἴσως ἄτοπον, οἷον τὰς παραλλήλους συμπίπτειν*, &c.

[c] Analyt. Prior. II. xviii. p. 66, a. 16-24: *ὁ δὲ ψευδὴς λόγος γίνεται παρὰ τὸ πρῶτον ψεῦδος*, &c.

which you aim at establishing. If you intend to arrive at it through preliminary syllogisms (prosyllogisms), you will ask assent to the necessary premisses in a confused or inverted order, and will refrain from enunciating at once the conclusion from any of them. Suppose that you wish to end by shewing that A may be predicated of F, and suppose that there must be intervening steps through B, C, D, E. You will not put the questions in this regular order, but will first ask him to grant that A may be predicated of B; next, that D may be predicated of E; afterwards, that B may be predicated of C, &c. You will thus try to obtain all the concessions requisite for your final conclusion, before he perceives your drift. If you can carry your point by only one syllogism, and have only one middle term to get conceded, you will do well to put the middle term first in your questions. This is the best way to conceal your purpose from the respondent.[a]

It will be his business to see that he is not thus tripped up in the syllogistic process.[b] If you ask the questions in the order above indicated, without enunciating your preliminary conclusions, he must take care

[a] Analyt. Prior. II. xix. p. 66, a. 33-b. 3: *χρὴ δ' ὅπερ φυλάττεσθαι παραγγέλλομεν ἀποκρινομένους, αὐτοὺς ἐπιχειροῦντας πειρᾶσθαι λανθάνειν.—κἂν δι' ἑνὸς μέσου γίνηται ὁ συλλογισμός, ἀπὸ τοῦ μέσου ἄρχεσθαι· μάλιστα γὰρ ἂν οὕτω λάνθανοι τὸν ἀποκρινόμενον.* See the explanation of Pacius, p. 385. Since the middle term does not appear in the conclusion, the respondent is less likely to be prepared for the conclusion that you want to establish. To put the middle term first, in enunciating the Syllogism, is regarded by Aristotle as a perverted and embarrassing order, yet it is the received practice among modern logicians.

[b] Analyt. Prior. II. xix. p. 66, a. 25-32: *πρὸς δὲ τὸ μὴ κατασυλλογίζεσθαι παρατηρητέον, ὅταν ἄνευ τῶν συμπερασμάτων ἐρωτᾷ τὸν λόγον*, &c.

Waitz (p. 520) explains *κατασυλλογίζεσθαι*, "disputationum et interrogationum laqueis aliquem irretire." This is, I think, more correct than the distinction which M. Barthélemy St. Hilaire seeks to draw, "entre le Catasyllogisme et la Réfutation," in the valuable notes to his translation of the Analytica Priora, p. 303.

not to concede the same term twice, either as predicate, or as subject, or as both; for you can arrive at no conclusion unless he grants you a middle term; and no term can be employed as middle, unless it be repeated twice. Knowing the conditions of a conclusion in each of the three figures, he will avoid making such concessions as will empower you to conclude in any one of them.[a] If the thesis which he defends is affirmative, the *elenchus* by which you impugn it must be a negative; so that he will be careful not to concede the premisses for a negative conclusion. If his thesis be negative, your purpose will require you to meet him by an affirmative; accordingly he must avoid granting you any sufficient premisses for an affirmative conclusion. He may thus make it impossible for you to prove syllogistically the contrary or contradictory of his thesis; and it is in proving this that the *elenchus* or refutation consists. If he will not grant you any affirmative proposition, nor any universal proposition, you know, by the rules previously laid down, that no valid syllogism can be constructed; since nothing can be inferred either from two premisses both negative, or from two premisses both particular.[b]

We have already seen that error may arise by wrong enunciation or arrangement of the terms of a syllogism, that is, defects in its form; but sometimes also, even when the form is correct, error may arise from wrong belief as to the matters affirmed or denied.[c] Thus the

[a] Analyt. Prior. II. xix. p. 66. a. 25-32.

[b] Ibid. xx. p. 66, b. 4-17. The reader will observe how completely this advice given by Aristotle is shaped for the purpose of obtaining victory in the argument, and how he leaves out of consideration both the truth of what the opponent asks to be conceded, and the belief entertained by the defendant. This is exactly the procedure which he himself makes a ground of contemptuous reproach against the Sophists.

[c] Ibid. xxi. p. 66, b. 18: *συμβαίνει δ' ἐνίοτε, καθάπερ ἐν τῇ θέσει τῶν*

same predicate may belong, immediately and essentially, alike to several distinct subjects; but you may believe (what is the truth) that it belongs to one of them, and you may at the same time believe (erroneously) that it does not belong to another. Suppose that A is predicable essentially both of B and C, and that A, B and C, are all predicable essentially of D. You may know that A is predicable of all B, and that B is predicable of all D; but you may at the same time believe (erroneously) that A is not predicable of any C, and that C is predicable of all D. Under this state of knowledge and belief, you may construct two valid syllogisms; the first (in *Barbara*, with B for its middle term) proving that A belongs to *all* D; the second (in *Celarent*, with C for its middle term) proving that A belongs to *no* D. The case will be the same, even if all the terms taken belong to the same ascending or descending logical series. Here, then, you *know* one proposition; yet you *believe* the proposition contrary to it.[a] How can such a mental condition be explained? It would, indeed, be an impossibility, if the middle term of the two syllogisms were the same, and if the premisses of the one syllogism thus contradicted directly and in terms, the premisses of the other: should that happen, you cannot know one side of the alternative and believe the other. But if the middle term be different, so that the contradiction between the premisses of the one syllogism and those of the other, is not direct, there is no impossibility. Thus, you know that A is predicable of all B,

ὅρων ἀπατώμεθα, καὶ κατὰ τὴν ὑπόληψιν γίνεσθαι τὴν ἀπάτην.

The vague and general way in which Aristotle uses the term *ὑπόληψις*, seems to be best rendered by our word *belief*. See Trendelenburg ad Aristot. De Animâ, p. 469; Biese, Philos. des Aristot. i. p. 211.

[a] Analyt. Prior. II. xxi. p. 66, b. 33: *ὥστε ὃ πως ἐπίσταται, τοῦτο ὅλως ἀξιοῖ μὴ ὑπολαμβάνειν· ὅπερ ἀδύνατον.*

and B of all D; while you believe at the same time that A is predicable of *no* C, and C of *all* D; the middle term being in one syllogism B, in the other, C.[a] This last form of error is analogous to what often occurs in respect to our knowledge of particulars. You know that A belongs to all B, and B to all C; you know, therefore, that A belongs to all C. Yet you may perhaps be ignorant of the existence of C. Suppose A to denote equal to two right angles; B, to be the triangle generally; C, a particular visible triangle. You know A B the universal proposition; yet you may at the same time believe that C does not exist; and thus it may happen that you know, and do not know, the same thing at the same time. For, in truth, the knowledge, that every triangle has its three angles equal to two right angles, is not (as a mental fact) simple and absolute, but has two distinct aspects; one as concerns the universal, the other as concerns the several particulars. Now, assuming the case above imagined, you possess the knowledge in the first of these two aspects, but not in the second; so that the apparent contrariety between knowledge and no knowledge is not real.[b] And in this sense the doctrine of Plato in the Menon is partially true—that learning is reminiscence. We can never know beforehand particular cases *per se*; but in proportion as we extend our induction to each case successively, we, as it were, recognize that, which we knew beforehand as a general truth, to be realized in each. Thus when we ascertain the given figure before us to be a triangle, we know immediately that its three angles are equal to two right angles.[c]

[a] Analyt. Pr. II. xxi. p. 67, a. 5-8.

[b] Ibid. p. 67, a. 19: *οὕτω μὲν οὖν ὡς τῇ καθόλου οἶδε τὸ Γ ὅτι δύο ὀρθαί, ὡς δὲ τῇ καθ' ἕκαστον οὐκ οἶδεν, ὥστ' οὐχ ἕξει τὰς ἐναντίας* (sc. *ἐπιστήμας*).

[c] Ibid. a. 22: *οὐδαμοῦ γὰρ συμβαίνει προεπίστασθαι τὸ καθ' ἕκαστον,*

We thus, by help of the universal, acquire a theoretical knowledge of particulars, but we do not know them by the special observation properly belonging to each particular case; so that we may err in respect to them without any positive contrariety between our cognition and our error; since what we know is the universal, while what we err in is the particular. We may even know that A is predicable of all B, and that B is predicable of all C; and yet we may believe that A is not predicable of C. We may know that every mule is barren, and that the animal before us is a mule, yet still we may believe her to be in foal; for perhaps we may never have combined in our minds the particular case along with the universal proposition.[a] *A fortiori*, therefore, we may make the like mistake, if we know the universal only, and do not know the particular. And this is perfectly possible. For take any one of the visible particular instances, even one which we have already inspected, so soon as it is out of sight we do not know it by actual and present cognition; we only know it, partly from the remembrance of past special inspection, partly from the universal under which it falls.[b]

ἀλλ' ἅμα τῇ ἐπαγωγῇ λαμβάνειν τὴν τῶν κατὰ μέρος ἐπιστήμην ὥσπερ ἀναγνωρίζοντας, &c. Cf. Anal. Post. I. ii. p. 71, b. 9, seq.; Plato, Menon, pp. 81-82.

[a] Analyt. Prior. II. xxi. p. 67, a. 36: οὐ γὰρ ἐπίσταται ὅτι τὸ Α τῷ Γ, μὴ συνθεωρῶν τὸ καθ' ἑκάτερον.

[b] Ibid. a. 39: οὐδὲν γὰρ τῶν αἰσθητῶν ἕξω τῆς αἰσθήσεως γενόμενον ἴσμεν, οὐδ' ἂν ἠσθημένοι τυγχάνωμεν, εἰ μὴ ὡς τῷ καθόλου καὶ τῷ ἔχειν τὴν οἰκείαν ἐπιστήμην, ἀλλ' οὐχ ὡς τῷ ἐνεργεῖν.

Complete cognition (τὸ ἐνεργεῖν, according to the view here set forth) consists of one mental act corresponding to the major premiss; another corresponding to the minor; and a third including both the two in conscious juxta-position. The third implies both the first and the second; but the first and the second do not necessarily imply the third, nor does either of them imply the other; though a person cognizant of the first is *in a certain way, and to a certain extent*, cognizant of *all* the particulars to which the second applies. Thus the person who knows Ontology (the most universal of all sciences, τοῦ ὄντος ᾗ ὄν), knows *in a certain way*

We may know in one, or other, or all, of these three distinct ways: either by the universal; or specially (as remembered); or by combination of both—actual and present cognition, that is, by the application of a foreknown generality to a case submitted to our senses. And as we may know in each of these three ways, so we may also err or be deceived in each of the same three ways.[a] It is therefore quite possible that we may know, and that we may err or be deceived about the same thing, and that, too, without any contrariety. This is what happens when we know both the two premisses of the syllogism, but have never reflected on them before, nor brought them into conjunction in our minds. When we believe that the mule before us is in foal, we are destitute of the actual knowledge; yet our erroneous belief is not for that reason contrary to knowledge; for an erroneous belief, contrary to the universal proposition, must be represented by a counter-syllogism.[b]

all *scibilia*. Metaphys. A., p. 982, a. 21: *τούτων δὲ τὸ μὲν πάντα ἐπίστασθαι τῷ μάλιστα ἔχοντι τὴν καθόλου ἐπιστήμην ἀναγκαῖον ὑπάρχειν· οὗτος γὰρ οἱδέ πως πάντα τὰ ὑποκείμενα.* Ib. a. 8: *ὑπολαμβάνομεν δὴ πρῶτον μὲν ἐπίστασθαι πάντα τὸν σοφὸν ὡς ἐνδέχεται, μὴ καθ' ἕκαστον ἔχοντα ἐπιστήμην αὐτῶν.* See the Scholia of Alexander on these passages, pp. 525, 526, Brandis; also Aristot. Analyt. Post. I. xxiv. p. 86, a. 25; Physica, VII. p. 247, a. 5. Bonitz observes justly (Comm. ad. Metaphys. p. 41) as to the doctrine of Aristotle: "Scientia et ars versatur in notionibus universalibus, solutis ac liberis à conceptu singularum rerum; ideoque, *etsi orta est à principio et experientiâ*, tradi tamen etiam iis potest qui careant experientiâ."

[a] Analyt. Prior. II. xxi. p. 67, b. 3: *τὸ γὰρ ἐπίστασθαι λέγεται τριχῶς, ἢ ὡς τῇ καθόλου, ἢ ὡς τῇ οἰκείᾳ, ἢ ὡς τῷ ἐνεργεῖν· ὥστε καὶ τὸ ἠπατῆσθαι τοσαυταχῶς.*

[b] Ibid. b. 5: *οὐδὲν οὖν κωλύει καὶ εἰδέναι καὶ ἠπατῆσθαι περὶ αὐτό, πλὴν οὐκ ἐναντίως. ὅπερ συμβαίνει καὶ τῷ καθ' ἑκατέραν εἰδότι τὴν πρότασιν καὶ μὴ ἐπεσκεμμένῳ πρότερον. ὑπολαμβάνων γὰρ κύειν τὴν ἡμίονον οὐκ ἔχει τὴν κατὰ τὸ ἐνεργεῖν ἐπιστήμην, οὐδ' αὖ διὰ τὴν ὑπόληψιν ἐναντίαν ἀπάτην τῇ ἐπιστήμῃ· συλλογισμὸς γὰρ ἡ ἐναντία ἀπάτη τῇ καθόλου.* About erroneous belief, where a man believes the contrary of a true conclusion, adopting a counter-syllogism, compare Analyt. Post. I. xvi. p. 79, b. 23: *ἄγνοια κατὰ διάθεσιν.*

It is impossible, however, for a man to believe that one contrary is predicable of its contrary, or that one contrary is identical with its contrary, essentially and as an universal proposition; though he may believe that it is so by accident (*i.e.* in some particular case, by reason of the peculiarities of that case). In various ways this last is possible; but this we reserve for fuller examination.[a]

Whenever (Aristotle next goes on to say) the extremes of a syllogism reciprocate or are co-extensive with each other (*i.e.* when the conclusion being affirmative is convertible simply), the middle term must reciprocate or be co-extensive with both.[b] If there be four terms (A, B,

[a] Analyt. Prior. II. xxi. p. 67, b. 23: *ἀλλ' ἴσως ἐκεῖνο ψεῖδος, τὸ ὑπολαβεῖν τινὰ κακῷ εἶναι τὸ ἀγαθῷ εἶναι, εἰ μὴ κατὰ συμβεβηκός· πολλαχῶς γὰρ ἐγχωρεῖ τοῦθ' ὑπολαμβάνειν. ἐπισκεπτέον δὲ τοῦτο βέλτιον.* This distinction is illustrated by what we read in Plato, Republic, v. pp. 478-479. The impossibility of believing that one contrary is identical with its contrary, is maintained by Sokrates in Plato, Theætetus, p. 190, B-D, as a part of the long discussion respecting *ψευδὴς δόξα*: either there is no such thing as *ψευδὴς δόξα*, or a man may know, and not know, the same thing, ibid. p. 196 C. Aristotle has here tried to show in what sense this last-mentioned case is possible.

[b] Analyt. Prior. II. xxii. p. 67, b. 27, seq. In this chapter Aristotle introduces us to affirmative universal propositions convertible *simpliciter*; that is, in which the predicate must be understood to be distributed as well as the subject. Here, then, the quantity of the predicate is determined in thought. This is (as Julius Pacius remarks, p. 371) in order to lay down principles for the resolution of Induction into Syllogism, which is to be explained in the next chapter. In these peculiar propositions, the reason urged by Sir W. Hamilton for his favourite precept of verbally indicating the quantity of the predicate, is well founded as a fact: though *he* says that in *all* propositions the quantity of the predicate is understood in thought, which I hold to be incorrect.

We may remark that this recognition by Aristotle of a class of universal affirmative propositions in which predicate and subject reciprocate, contrived in order to force Induction into the syllogistic framework, is at variance with his general view both of reciprocating propositions and of Induction. He tells us (Analyt. Post. I. iii. p. 73, a. 18) that such reciprocating propositions are very rare, which would not be true if they are taken to represent every Induction; and he forbids us emphatically to annex the mark of universality to the predicate; which he has no right to do, if he calls upon us to reason on

C, D), such that A reciprocates with B, and C with D, and if either A or C must necessarily be predicable of every subject; then it follows that either B or D must necessarily also be predicable of every subject. Again, if either A or B must necessarily be predicable of every subject, but never both predicable of the same at once; and if either C or D must be predicable of every subject, but never both predicable of the same at once; then, if A and C reciprocate, B and D will also reciprocate.[a] When A is predicable of all B and all C, but of no other subject besides, and when B is predicable of all C, then A and B must reciprocate with each other, or be co-extensive with each other; that is, B may be predicated of every subject of which A can be predicated, though B cannot be predicated of A itself.[b] Again, when A and B are predicable of all C, and when C reciprocates with B, then A must also be predicable of all B.[c]

Lastly, suppose two pairs of opposites, A and B, C and D; let A be more eligible than B, and D more eligible than C. Then, if A C is more eligible than B D, A will also be more eligible than D. For A is as much worthy of pursuit as B is worthy of avoidance, they being two opposites; the like also respecting C and D. If then A and D are equally worthy of pursuit, B and C are equally worthy of avoidance; for each is equal to each. Accordingly the two together, A C, will be equal to the two together, B D. But this would be contrary to the supposition; since we assumed A to be more eligible than B, and D to be more eligible

the predicate as distributed (Analyt. Prior. I. xxvii., p. 43, b. 17; De Interpret. p. 17, b. 14).

[a] Analyt. Prior. II. xxii. p. 68, a. 2-15.

[b] Ibid. a. 16-21. πλὴν αὐτοῦ τοῦ A. Waitz explains these words in his note (p. 531): yet I do not clearly make them out; and Alexander of Aphrodisias declared them to assert what was erroneous (ἐσφάλθαι λέγει, Schol. p. 194, a. 40, Brandis).

[c] Analyt. Prior. II. xxii. p. 68, a. 21-25.

than C. It will be seen that on this supposition A is more worthy of pursuit than D, and that C is less worthy of avoidance than B; the greater good and the lesser evil being more eligible than the lesser good and the greater evil. Now apply this to a particular case of a lover, so far forth as lover. Let A represent his possession of those qualities which inspire reciprocity of love towards him in the person beloved; B, the absence of those qualities; D, the attainment of actual sexual enjoyment; C, the non-attainment thereof. In this state of circumstances, it is evident that A is more eligible or worthy of preference than D. The being loved is a greater object of desire to the lover *qua* lover than sexual gratification; it is the real end or purpose to which love aspires; and sexual gratification is either not at all the purpose, or at best only subordinate and accessory. The like is the case with our other appetites and pursuits.[a]

Such is the relation of the terms of a syllogism in regard to reciprocation and antithesis. Let it next be understood that the canons hitherto laid down belong not merely to demonstrative and dialectic syllogisms, but to rhetorical and other syllogisms also; all of which must be constructed in one or other of the three figures. In fact, every case of belief on evidence, what-

[a] Analyt. Prior. II. xxii. p. 68, a. 25-b. 17. Aristotle may be right in the conclusion which he here emphatically asserts; but I am surprised that he should consider it to be proved by the reasoning that precedes.

It is probable that Aristotle here understood the object of ἔρως (as it is conceived through most part of the Symposion of Plato) to be a beautiful youth: (see Plato, Sympos. pp. 218-222; also Xenophon, Sympos. c. viii., Hiero, c. xi. 11, Memorab. I. ii. 29, 30). Yet this we must say —what the two women said when they informed Simætha of the faithlessness of Delphis (Theokrit. Id. ii. 149)—

Κἠγώ μοι ἄλλα τε πολλά, καὶ ὡς ἔρα Δέλφις ἔραται·
Κἤγε μὲν οὔτε γυναικὸς ἔχει πόθος, εἴτε καὶ ἀνδρός,
Οὐκ ἔφαν· ἀτρεκὲς ἴδμεν.

ever be the method followed, must be tested by these same canons. We believe everything either through Syllogism or upon Induction.[a]

Though Aristotle might seem, even here, to have emphatically contrasted Syllogism with Induction as a ground of belief, he proceeds forthwith to indicate a peculiar form of Syllogism which may be constructed out of Induction. Induction, and the Syllogism from or out of Induction (he says) is a process in which we invert the order of the terms. Instead of concluding from the major through the middle to the minor (*i.e.* concluding that the major is predicable of the minor), we now begin from the minor and conclude from thence through the middle to the major (*i.e.* we conclude that the major is predicable of the middle).[b] In Syllogism as hitherto described, we concluded that A the major was predicable of C the minor, through the middle B; in the Syllogism from Induction we begin by affirming that A the major is predicable of C the minor; next, we affirm that B the middle is also predicable of C the minor. The two premisses, standing thus, correspond to the Third figure of the Syllogism (as explained in the preceding pages) and would not therefore by themselves justify any thing more than a *particular* affirmative conclusion. But we reinforce them by introducing an extraneous assumption :

[a] Analyt. Prior. II. xxiii. p. 68, b. 13: *ἅπαντα γὰρ πιστεύομεν ἢ διὰ συλλογισμοῦ ἢ ἐξ ἐπαγωγῆς.*

[b] Analyt. Prior. II. xxiii. p. 68, b. 15: *ἐπαγωγὴ μὲν οὖν ἐστὶ καὶ ὁ ἐξ ἐπαγωγῆς συλλογισμὸς τὸ διὰ τοῦ ἑτέρου θάτερον ἄκρον τῷ μέσῳ συλλογίσασθαι· οἷον εἰ τῶν ΑΓ μέσον τὸ Β, διὰ τοῦ Γ δεῖξαι τὸ Α τῷ Β ὑπάρχον· οὕτω γὰρ ποιούμεθα τὰς ἐπαγωγάς.*

Waitz in his note (p. 532) says : "Fit Inductio, cum per minorem terminum demonstratur *medium prædicari de majore.*" This is an erroneous explanation. It should have been : "demonstratur *majorem prædicari de medio.*" Analyt. Prior. II. xxiii. 68, b. 32: *καὶ τρόπον τινὰ ἀντικεῖται ἡ ἐπαγωγὴ τῷ συλλογισμῷ· ὁ μὲν γὰρ διὰ τοῦ μέσου τὸ ἄκρον τῷ τρίτῳ δείκνυσιν, ἡ δὲ διὰ τοῦ τρίτου τὸ ἄκρον τῷ μέσῳ.*

—That the minor C is co-extensive with the middle B, and comprises the entire aggregate of individuals of which B is the universal or class-term. By reason of this assumption the minor proposition becomes convertible simply, and we are enabled to infer (according to the last preceding chapter) an universal affirmative conclusion, that the major term A is predicable of the middle term B. Thus, let A (the major term) mean the class-term, long-lived; let B (the middle term) mean the class-term, bile-less, or the having no bile; let C (the minor term) mean the individual animals—man, horse, mule, &c., coming under the class-term B, bile-less.[a] We are supposed to know,

[a] Analyt. Prior. II. xxiii. p. 68, b. 18: *οἷον ἔστω τὸ Α μακρόβιον, τὸ δ' ἐφ' ᾧ Β, τὸ χολὴν μὴ ἔχον, ἐφ' ᾧ δὲ Γ, τὸ καθ' ἕκαστον μακρόβιον, οἷον ἄνθρωπος καὶ ἵππος καὶ ἡμίονος. τῷ δὴ Γ ὅλῳ ὑπάρχει τὸ Α· πᾶν γὰρ τὸ ἄχολον μακρόβιον· ἀλλὰ καὶ τὸ Β, τὸ μὴ ἔχειν χολήν, παντὶ ὑπάρχει τῷ Γ. εἰ οὖν ἀντιστρέφει τὸ Γ τῷ Β καὶ μὴ ὑπερτείνει τὸ μέσον, ἀνάγκη τὸ Α τῷ Β ὑπάρχειν.*

I have transcribed this Greek text as it stands in the editions of Buhle, Bekker, Waitz, and F. Didot. Yet, notwithstanding these high authorities, I venture to contend that it is not wholly correct; that the word *μακρόβιον*, which I have emphasized, is neither consistent with the context, nor suitable for the point which Aristotle is illustrating. Instead of *μακρόβιον*, we ought in that place to read *ἄχολον*; and I have given the sense of the passage in my English text as if it did stand *ἄχολον* in that place.

I proceed to justify this change. If we turn back to the edition by Julius Pacius (1584, p. 377), we find the text given as follows after the word *ἡμίονος* (down to that word the text is the same): *τῷ δὴ Γ ὅλῳ ὑπάρχει τὸ Α· πᾶν γὰρ τὸ Γ μακρόβιον· ἀλλὰ καὶ τὸ Β, τὸ μὴ ἔχον χολήν, παντὶ ὑπάρχει τῷ Γ. εἰ οὖν ἀντιστρέφει τὸ Γ τῷ Β, καὶ μὴ ὑπερτείνει τὸ μέσον, ἀνάγκη τὸ Α τῷ Β ὑπάρχειν.* Earlier than Pacius, the edition of Erasmus (Basil. 1550) has the same text in this chapter.

Here it will be seen that in place of the words given in Waitz's text, *πᾶν γὰρ τὸ ἄχολον μακρόβιον*, Pacius gives *πᾶν γὰρ τὸ Γ μακρόβιον*; annexing however to the letter Γ an asterisk referring to the margin, where we find the word *ἄχολον* inserted in small letters, seemingly as a various reading not approved by Pacius. And M. Barthélemy St. Hilaire has accommodated his French translation (p. 328) to the text of Pacius: "Donc A est à C tout entier, car tout C est longève." Boethius in his Latin translation (p. 519) recognizes as his original *πᾶν γὰρ τὸ ἄχολον μακρόβιον*, but he alters the text in the words immediately preceding:—"Ergo *toti*

or to have ascertained, that A may be predicated of all C; (*i.e.* that all men, horses, mules, &c., are

B (instead of *toti C*) inest A, omne enim quod sine cholera est, longævum," &c. (p. 519). The edition of Aldus (Venet. 1495) has the text conformable to the Latin of Boethius: τῷ δὴ Β ὅλῳ ὑπάρχει τὸ Α· πᾶν γὰρ τὸ ἄχολον μακρόβιον. Three distinct Latin translations of the 16th century are adapted to the same text, viz., that of Vives and Valentinus (Basil. 1542); that published by the Junta (Venet. 1552); and that of Cyriacus (Basil. 1563). Lastly, the two Greek editions of Sylburg (1587) and Casaubon (Lugduni 1590), have the same text also: τῷ δὴ Β ὅλῳ ὑπάρχει τὸ Α· πᾶν γὰρ [τὸ Γ] τὸ ἄχολον μακρόβιον. Casaubon prints in brackets the words [τὸ Γ] before τὸ ἄχολον.

Now it appears to me that the text of Bekker and Waitz (though Waitz gives it without any comment or explanation) is erroneous; neither consisting with itself, nor conforming to the general view enunciated by Aristotle of the Syllogism from Induction. I have cited two distinct versions, each different from this text, as given by the earliest editors; in both the confusion appears to have been felt, and an attempt made to avoid it, though not successfully.

Aristotle's view of the Syllogism from Induction is very clearly explained by M. Barthélemy St. Hilaire in the instructive notes of his translation, pp. 326-328; also in his Preface, p. lvii. :—" L'induction n'est au fond qu'un syllogisme dont le mineur et le moyen sont d'extension égale. Du reste, il n'est qu'une seule manière dont le moyen et le mineur puissent être d'égale extension; c'est que le mineur se compose de toutes les parties dont le moyen représente la totalité. D'une part, tous les individus: de l'autre, l'espèce totale qu'ils forment. L'intelligence fait aussitôt équation entre les deux termes égaux."

According to the Aristotelian text, as given both by Pacius and the others, A, the major term, represents *longævum* (long-lived, the class-term or total); B, the middle term, represents *vacans bile* (bile-less, the class-term or total); C, the minor term, represents the aggregate individuals of the class *longævum*, man, horse, mule, &c.

Julius Pacius draws out the Inductive Syllogism, thus:—

1. Omnis homo, equus, asinus, &c., est longævus.
2. Omnis homo, equus, asinus, &c., vacat bile.
 Ergo:
3. Quicquid vacat bile, est longævum.

Convertible into a Syllogism in Barbara:—

1. Omnis, homo, equus, asinus, &c., est longævus.
2. Quicquid vacat bile, est homo, equus, asinus, &c.
 Ergo:
3. Quicquid vacat bile, est longævum.

Here the force of the proof (or the possibility, in this exceptional case, of converting a syllogism in the Third figure into another in *Barbara* of the First figure) depends upon the equation or co-extensiveness (not enunciated in the premisses, but assumed in addition to the premisses) of the minor term C with the middle term B. But I contend that this is *not* the condition peremptorily required, or sufficient for proof, if we suppose C the minor term to represent *omne longævum*. We must understand C the minor term to represent *omne vacans bile*, or *quicquid vacat bile*: and unless we understand this, the proof fails. In other words, *homo*, *equus*, *asinus*, &c. (the aggregate of individuals), must be co-extensive with the class-term bile-less

long-lived); we farther know that B is predicable of all C (*i.e.* that men, horses, mules, &c., belong

or *vacans bile:* but they need not be co-extensive with the class-term long-lived or *longævum*. In the final conclusion, the subject *vacans bile* is distributed; but the predicate *longævum* is not distributed; this latter may include, besides all bile-less animals, any number of other animals, without impeachment of the syllogistic proof.

Such being the case, I think that there is a mistake in the text as given by all the editors, from Pacius down to Bekker and Waitz. What they give, in setting out the terms of the Aristotelian Syllogism from Induction, is: *ἔστω τὸ* A *μακρόβιον, τὸ δ' ἐφ' ᾧ* B, *τὸ χολὴν μὴ ἔχον, ἐφ' ᾧ δὲ* Γ, *τὸ καθ' ἕκαστον μακρόβιον, οἷον ἄνθρωπος καὶ ἵππος καὶ ἡμίονος.* Instead of which the text ought to run, *ἐφ' ᾧ δὲ* Γ, *τὸ καθ' ἕκαστον ἄχολον, οἷον ἄνθρ. κ. ἵπ. κ. ἡμί.* That these last words were the original text, is seen by the words immediately following: *τῷ δὴ* Γ *ὅλῳ ὑπάρχει τὸ* A. *πᾶν γὰρ τὸ ἄχολον μακρόβιον.* For the reason thus assigned (in the particle *γάρ*) is irrelevant and unmeaning if Γ designates *τὸ καθ' ἕκαστον μακρόβιον*, while it is pertinent and even indispensable if Γ designates *τὸ καθ' ἕκαστον ἄχολον.* Pacius (or those whose guidance he followed in his text) appears to have perceived the incongruity of the reason conveyed in the words *πᾶν γὰρ τὸ ἄχολον μακρόβιον*; for he gives, instead of these words, *πᾶν γὰρ τὸ* Γ *μακρόβιον.* In this version the reason is indeed no longer incongruous, but simply useless and unnecessary; for when we are told that A designates the class *longævum*, and that Γ designates the individual *longæva*, we surely require no reason from without to satisfy us that A is predicable of all Γ. The text, as translated by Boethius and others, escapes that particular incongruity, though in another way, but it introduces a version inadmissible on other grounds. Instead of *τῷ δὴ* Γ *ὅλῳ ὑπάρχει τὸ* A, *πᾶν γὰρ τὸ ἄχολον μακρόβιον*, Boethius has *τῷ δὴ* B *ὅλῳ ὑπάρχει τὸ* A, *πᾶν γὰρ τὸ ἄχολον μακρόβιον.* This cannot be accepted, because it enunciates the conclusion of the syllogism as if it were one of the premisses. We must remember that the conclusion of the Aristotelian Syllogism from Induction is, that A is predicable of B, one of the premisses to prove it being that A is predicable of the minor term C. But obviously we cannot admit as one of the premisses the proposition that A may be predicated of B, since this proposition would then be used as premiss to prove itself as conclusion.

If we examine the Aristotelian Inductive Syllogism which is intended to conduct us to the final *probandum*, we shall see that the terms of it are incorrectly set out by Bekker and Waitz, when they give the minor term Γ as designating *τὸ καθ' ἕκαστον μακρόβιον.* This last is not one of the three terms, nor has it any place in the syllogism. The three terms are:

1. A — major — the class-term or class *μακρόβιον—longævum.*
2. B — middle — the class term or class *ἄχολον* — bile-less.
3. C — minor — the individual bile-less animals, man, horse, &c.

There is no term in the syllogism corresponding to the individual *longæva* or long-lived animals; this last (I repeat) has no place in the reasoning. We are noway concerned with the totality of long-lived animals; all that

to the class bile-less). Here, then, we have two premisses in the Third syllogistic figure, which in themselves would warrant us in drawing the particular affirmative conclusion, that A is predicable of *some* B, but no more. Accordingly, Aristotle directs us to supplement these premisses[a] by the extraneous assumption or postulate, that C the minor comprises *all* the individual animals that are bile-less, or all those that correspond to the class-term B; in other words, the assumption, that B the middle does not denote any more individuals than those which are covered by C the minor—that B the middle does not stretch beyond or overpass C the minor.[b] Having the two premisses, and

the syllogism undertakes to prove is, that in and among that totality all bile-less animals are included; whether there are or are not other long-lived animals besides the bile-less, the syllogism does not pretend to determine. The equation or co-extensiveness required (as described by M. Barthélemy St. Hilaire in his note) is not between the individual long-lived animals and the class, bile-less animals (middle term), but between the aggregate of individual animals known to be bile-less and the class, bile-less animals. The real minor term, therefore, is (not the individual *long-lived* animals, but) the individual *bile-less* animals. The two premisses of the Inductive Syllogism will stand thus:—

Men, Horses, Mules, &c., are long-lived (major).
Men, Horses, Mules, &c., are bile-less (minor).

And, inasmuch as the subject of the minor proposition is co-extensive with the predicate (which, if quantified according to Hamilton's phraseology, would be, *All* bile-less animals), so that the proposition admits of being converted simply,—the middle term will become the subject of the conclusion, All bileless animals are long-lived.

[a] Analyt. Prior. II. xxiii. p. 68, b. 27: *δεῖ δὲ νοεῖν τὸ Γ τὸ ἐξ ἁπάντων τῶν καθ' ἕκαστον συγκείμενον· ἡ γὰρ ἐπαγωγὴ διὰ πάντων.*

[b] Ibid. p. 68, b. 23: *εἰ οὖν ἀντιστρέφει τὸ Γ τῷ Β, καὶ μὴ ὑπερτείνει τὸ μέσον, ἀνάγκη τὸ Α τῷ Β ὑπάρχειν.*

Julius Pacius translates this: "Si igitur convertatur τὸ Γ cum B, nec medium excedat, necesse est τὸ A τῷ B inesse." These Latin words include the same grammatical ambiguity as is found in the Greek original: *medium*, like τὸ μέσον, may be either an accusative case governed by *excedat*, or a nominative case preceding *excedat*. The same may be said of the other Latin translations, from Boethius downwards.

But M. Barthélemy St. Hilaire in his French translation, and Sir W. Hamilton in his English translation (Lectures on Logic, Vol. II. iv. p. 358, Appendix), steer clear of this ambiguity. The former says: "Si donc C est réciproque à B, et qu'il ne dépasse pas le moyen,

this postulate besides, we acquire the right to conclude that A is predicable of *all* B. But we could not draw that conclusion from the premisses alone, or without the postulate which declares B and C to be co-extensive. The conclusion, then, becomes a particular exemplification of the general doctrine laid down in the last chapter, respecting the reciprocation of extremes and the consequences thereof. We thus see that this very peculiar Syllogism from Induction is (as indeed Aristotle himself remarks) the opposite or antithesis of a genuine Syllogism. It has no proper middle term; the conclusion in which it results is the first or major propo-

il est nécessaire alors que A soit à B:" to the same purpose, Hamilton, *l. c.* These words are quite plain and unequivocal. Yet I do not think that they convey the meaning of Aristotle. In my judgment, Aristotle meant to say: "If then C reciprocates with B, and if the middle term (B) does not stretch beyond (the minor C), it is necessary that A should be predicable of B." To shew that this must be the meaning, we have only to reflect on what C and B respectively designate. It is assumed that C designates the sum of individual bile-less animals; and that B designates the class or class-term bile-less, that is, the totality thereof. Now the sum of individuals included in the minor (C) cannot upon any supposition overpass the totality; but it may very possibly fall short of totality; or (to state the same thing in other words) the totality may possibly surpass the sum of individuals under survey, but it cannot possibly fall short thereof. B is here the limit, and may possibly stretch beyond C; but C cannot stretch beyond B. Hence I contend that the translations, both by M. Barthélemy St. Hilaire and Sir W. Hamilton, take the wrong side in the grammatical alternative admissible under the words *καὶ μὴ ὑπερτείνει τὸ μέσον*. The only doubt that could possibly arise in the case was, whether the aggregate of individuals designated by the minor did, or did not, reach up to the totality designated by the middle term; or (changing the phrase) whether the totality designated by the middle term did, or did not, stretch beyond the aggregate of individuals designated by the minor. Aristotle terminates this doubt by the words: "And if the middle term does *not* stretch beyond (the minor)." Of course the middle term does not stretch beyond, when the terms reciprocate; but when they do not reciprocate, the middle term must be the *more* extensive of the two; it can *never* be the *less* extensive of the two, since the aggregate of individuals cannot possibly exceed totality, though it may fall short thereof.

I have given in the text what I think the true meaning of Aristotle, departing from the translations of M. Barthélemy St. Hilaire and Sir W. Hamilton.

sition, the characteristic feature of which it is to be *immediate*, or not to be demonstrated through a middle term. Aristotle adds that the genuine Syllogism, which demonstrates through a middle term, is *by nature* prior and more effective as to cognition; but that the Syllogism from Induction is *to us* plainer and clearer.[a]

From Induction he proceeds to Example. You here take in (besides the three terms, major, middle, and minor, of the Syllogism) a fourth term; that is, a new particular case analogous to the minor. Your purpose here is to show—not, as in the ordinary Syllogism, that the major term is predicable of the minor, but, as in the Inductive Syllogism—that the major term is predicable of the middle term; and you prove this conclusion, not (as in the Inductive Syllogism) through the minor term, but through the new case or fourth term analogous to the minor.[b] Let A represent evil or mischievous; B, war against neighbours, generally; C, war of Athens against Thebes, an event to come and under deliberation; D, war of Thebes against Phokis, a past event of which the issue is known to have been signally mischievous. You assume as known, first, that A is predicable of D, *i.e.* that the war of Thebes against Phokis has been disastrous; next, that B is predicable both of C and of D, *i.e.* that each of the two wars, of Athens against Thebes, and of Thebes against Phokis, is a war of neighbours against neigh-

[a] Analyt. Prior. II. xxiii. p. 68, b. 30-38: *ἔστι δ' ὁ τοιοῦτος συλλογισμὸς τῆς πρώτης καὶ ἀμέσου προτάσεως· ὧν μὲν γάρ ἐστι μέσον, διὰ τοῦ μέσου ὁ συλλογισμός, ὧν δὲ μή ἐστι, δι' ἐπαγωγῆς.—φύσει μὲν οὖν πρότερος καὶ γνωριμώτερος ὁ διὰ τοῦ μέσου συλλογισμός, ἡμῖν δ' ἐναργέστερος ὁ διὰ τῆς ἐπαγωγῆς.*

[b] Analyt. Prior. II. xxiv. p. 68, b. 38: *παραδεῖγμα δ' ἐστὶν ὅταν τῷ μέσῳ τὸ ἄκρον ὑπάρχον δειχθῇ διὰ τοῦ ὁμοίου τῷ τρίτῳ.*

bours, or a conterminous war. Now from the premiss that A is predicable of D, along with the premiss that B is predicable of D, you infer that A is predicable of the class B, or of conterminous wars generally; and hence you draw the farther inference, that A is also predicable of C, another particular case under the same class B. The inference here is, in the first instance, from part to whole; and finally, through that whole, from the one part to another part of the same whole. *Induction* includes in its major premiss all the particulars, declaring all of them to be severally subjects of the major as predicate; hence it infers as conclusion, that the major is also predicable of the middle or class-term comprising all these particulars, but comprising no others. *Example* includes not all, but only one or a few particulars; inferring from it or them, first, to the entire class, next, to some new analogous particular belonging to the class.[a]

These chapters respecting Induction and Example are among the most obscure and perplexing in the Aristotelian Analytica. The attempt to throw both Induction and Example into the syllogistic form is alike complicated and unfortunate; moreover, the unsatisfactory reading and diversities in the text, among commentators and translators, show that the reasoning

[a] Analyt. Prior. II. xxiv. p. 69, a. 1-19. Julius Pacius (p. 400) notes the unauthorized character of this so-called Paradeigmatic Syllogism, contradicting the rules of the figures laid down by Aristotle, and also the confused manner in which the scope of it is described: first, to infer from a single example to the universal; next, to infer from a single example *through* the universal to another parallel case. To which we may add the confused description in p. 69, a. 17, 18, where τὸ ἄκρον in the first of the two lines signifies the *major* extreme—in the second of the two the *minor* extreme. See Waitz's note, p. 533.

If we turn to ch. xxvii. p. 70, a. 30-34, we shall find Aristotle on a different occasion disallowing altogether this so-called Syllogism from Example.

of Aristotle has hitherto been imperfectly apprehended.* From some of his phrases, we see that he was aware of the essential antithesis between Induction and Syllogism; yet the syllogistic forms appear to have exercised such fascination over his mind, that he could not be satisfied without trying to find some abnormal form of Syllogism to represent and give validity to Induction. In explaining generally what the Syllogism is, and what Induction is, he informs us that the Syllogism

* Sir W. Hamilton (Lectures on Logic, vol. i. p. 319) says justly, that Aristotle has been very brief and unexplicit in his treatment of Induction. Yet the objections that Hamilton makes to Aristotle are very different from those which I should make. In the learned and valuable Appendix to his Lectures (vol. iv. pp. 358-369), he collects various interesting criticisms of logicians respecting Induction as handled by Aristotle. Ramus (in his Scholæ Dialecticæ, VIII. xi.) says very truly:—"Quid vero sit Inductio, perobscure ab Aristotele declaratur; nec ab interpretibus intelligitur, quo modo *syllogismus* per medium concludat majus extremum de minore; *inductio*, majus de medio per minus."

The Inductive Syllogism, as constructed by Aristotle, requires a reciprocating minor premiss. It may, indeed, be cited (as I have already remarked) in support of Hamilton's favourite precept of quantifying the predicate. The predicate of this minor must be assumed as *quantified in thought*, the subject being taken as co-extensive therewith. Therefore Hamilton's demand that it shall be *quantified in speech* has really in this case that foundation which he erroneously claims for it in all cases. He complains that Lambert and some other logicians dispense with the necessity of quantifying the predicate of the minor by making it disjunctive; and adds the remarkable statement that "the recent German logicians, Herbart, Twesten, Drobisch, &c., following Lambert, make the Inductive Syllogism a byeword" (p. 366). I agree with them in thinking the attempted transformation of Induction into Syllogism very unfortunate, though my reasons are probably not the same as theirs.

Trendelenburg agrees with those who said that Aristotle's doctrine about the Inductive Syllogism required that the minor should be disjunctively enunciated (Logische Untersuchungen, xiv. p. 175, xvi. pp. 262, 263; also Erläuterungen zu den Elementen der Aristotelischen Logik, ss. 34-36, p. 71). Ueberweg takes a similar view (System der Logik, sect. 128, p. 367, 3rd ed.). If the Inductive Inference is to be twisted into Syllogism, it seems more naturally to fall into an *hypothetical* syllogism, *e. g.*:—

If this, that, and the other magnet attract iron, all magnets attract iron;
But this, that, and the other magnet do attract iron: *Ergo*, &c.

presupposes and rests upon the process of Induction as its postulate. For there can be no valid Syllogism without an universal proposition in one (at least) of the premisses; and he declares, unequivocally, that universal propositions are obtained only through Induction. How Induction operates through the particular facts of sense, remembered, compared, and coalescing into clusters held together by associating similarity, he has also told us; it is thus that Experience, with its universal notions and conjunctions, is obtained. But this important process is radically distinct from that of syllogizing, though it furnishes the basis upon which all syllogizing is built.

The central idea of the Syllogism, as defined by Aristotle, is that of a conclusion following from given premisses by *necessary* sequence;[a] meaning by the term *necessary* thus much and no more—that you cannot grant the premisses, and deny the conclusion, without being inconsistent with yourself, or falling into contradiction. In all the various combinations of propositions, set forth by Aristotle as the different figures and modes of Syllogism, this property of necessary sequence is found. But it is a property which no Induction can ever possess.[b] When Aristotle professes to point out a particular mode of Syllogism to which Induction conforms, he can only do so by falsifying

[a] Alexander intimates that Aristotle enunciated "necessary sequence" as a part of his definition of Syllogism, for the express purpose of distinguishing it from Induction, which is a sequence *not necessary* (Schol. ad Top. p. 253, a. 19, Br.): *τὸ δ' ἐξ ἀνάγκης προσκείμενον ἐν τῷ ὅρῳ, τῆς ἐπαγωγῆς χωρίζει τὸν συλλογισμόν· ἔστι μὲν γὰρ καὶ ἐπαγωγὴ λόγος ἐν ᾧ τεθέντων τινῶν ἕτερόν τι τῶν κειμένων συμβαίνει, ἀλλ' οὐκ ἐξ ἀνάγκης.*

[b] Alexander (in his Scholia on the Metaphysica, E. i. p. 406, ed. Bonitz) observes truly: *ἀλλ' εἰ ἐκ τῆς αἰσθήσεως καὶ τῆς ἐπαγωγῆς πίστις, οὐκ ἔστιν ἀπόδειξις, πρὸς πᾶσαν γὰρ ἐπαγωγὴν δύναταί τις ἐνίστασθαι καὶ μὴ εἶναι τὸ καθόλου συμπεραίνειν.*

the process of Induction, and by not accurately distinguishing between what is observed and what is inferred. In the case which he takes to illustrate the Inductive Syllogism — the inference from all particular bile-less animals to the whole class bile-less—he assumes that we have ascertained the attribute to belong to *all* the particulars, and that the inductive inference consists in passing from all of them to the class-term; the passage from premisses to conclusion being here necessary, and thus falling under the definition of Syllogism; since, to grant the premisses, and yet to deny the conclusion, involves a contradiction. But this doctrine misconceives what the inductive inference really is. We never can observe *all* the particulars of a class, which is indefinite as to number of particulars, and definite only in respect of the attributes connoted by the class-term. We can only observe *some* of the particulars, a greater or smaller proportion. Now it is in the transition from these *to* the totality of particulars, that the real inductive inference consists; not in the transition *from* the totality to the class-term which denotes that totality and connotes its determining common attribute. In fact, the distinction between the totality of particulars and the meaning of the class-term, is one not commonly attended to; though it is worthy of note in an analysis of the intellectual process, and is therefore brought to view by Aristotle. But he employs it incorrectly as an intermediate step to slur over the radical distinction between Induction and Syllogism. He subjoins:*—"You must conceive the minor term C (in the Inductive Syllogism) as composed of all

* Analyt. Prior. II. xxiii. p. 68, b. 27: *δεῖ δὲ νοεῖν τὸ Γ τὸ ἐξ ἁπάντων τῶν καθ' ἕκαστον συγκείμενον· ἡ γὰρ ἐπαγωγὴ διὰ πάντων.* See Professor Bain's 'Inductive Logic,' chap. i. s. 2, where this process is properly criticized.

the particulars; for Induction is through all of them." You may say that Induction is *through* all the particulars, if you distinguish this totality from the class-term, and if you treat the class-term as the ultimate *terminus ad quem*. But the Induction must first travel *to* all the particulars; being forced to take start from a part only, and then to jump onward far enough to cover the indefinite unobserved remainder. This jump is the real Induction; and this can never be brought under the definition of Syllogism; for in the best and most certain Induction the sequence is never a necessary one: you may grant the premisses and deny the conclusion without contradicting yourself.

Aristotle states very clearly:—"We believe everything either through Syllogism, or from Induction."[a] Here, as well as in several other passages, he notes the two processes as essentially distinct. The Syllogism requires in its premisses at least one general proposition; nor does Aristotle conceive the "generalities as the original data:"[b] he derives them from antecedent Induction. The two processes are (as he says) opposite in a certain way; that is, they are complementary halves of the same whole; Induction being the establishment of those universals which are essential for the deductive march of the Syllogism; while the two together make up the entire process of scientific reasoning. But he forgets or relinquishes this antithesis, when he presents to us the Inductive process as a given variety of Syllogism. And the objection to such a doctrine becomes the more manifest,

[a] Analyt. Prior. II. xxiii. p. 68, b. 13: *ἅπαντα γὰρ πιστεύομεν ἢ διὰ συλλογισμοῦ ἢ ἐξ ἐπαγωγῆς*. Here Induction includes Example, though in the next stage he puts the two apart. Compare Anal. Poster. I. i. p. 71, a. 9.

[b] See Mr. John Stuart Mill's System of Logic, Bk. II. ch. iii. s. 4, p. 219, 5th ed.

since in constructing his Inductive Syllogism, he is compelled to admit either that there is no middle term, or that the middle term is subject of the conclusion, in violation of the syllogistic canons.[a]

[a] Aldrich (Artis Log. Rudim. ch. iii. 9, 2, p. 175) and Archbishop Whately (Elem. of Logic, ch. i. p. 209) agree in treating the argument of Induction as a defective or informal Syllogism: see also to the same purpose Sir W. Hamilton, Lectures on Logic, vol. i. p. 322. Aldrich treats it as a Syllogism in *Barbara*, with the minor suppressed; but Whately rejects this, because the minor necessary to be supplied is false. He maintains that the premiss suppressed is the major, not the minor. I dissent from both. It appears to me that the opinion which Whately pronounces to be a fallacy is the real truth: "Induction is a distinct kind of argument from the Syllogism" (p. 208). It is the essential property of the Syllogism, as defined by Aristotle and by every one after him, that the truth of the conclusion follows *necessarily* from the truth of its premisses; that you cannot admit the premisses and reject the conclusion without contradicting yourself. Now this is what the best Induction never attains; and I contend that the presence or absence of this important characteristic is quite enough to constitute "two *distinct kinds* of argument." Whately objects to Aldrich (whom Hamilton defends) for supplying a suppressed *minor*, because it is "manifestly false" (p. 209). I object to Whately's supplied *major*, because it is uncertified, and therefore cannot be used to prove any conclusion. By clothing arguments from Induction in syllogistic form, we invest them with a character of necessity which does not really belong to them. The establishment of general propositions, and the interpretation of them when established (to use the phraseology of Mr. Mill), must always be distinct mental processes; and the forms appropriate to the latter, involving necessary sequence, ought not to be employed to disguise the want of necessity—the varying and graduated probability, inherent in the former. Mr. Mill says (Syst. Log. Bk. III. ch. iii. s. 1, p. 343, 5th ed.):—"As Whately remarks, every induction is a syllogism with the major premiss suppressed; or (as I prefer expressing it) every induction may be thrown into the form of a syllogism, by supplying a major premiss." Even in this modified phraseology, I cannot admit the propriety of throwing Induction into syllogistic forms of argument. By doing this we efface the special character of Induction, as the jump from particular cases, more or fewer, to an universal proposition comprising them and an indefinite number of others besides. To state this in forms which imply that it is a necessary step, involving nothing more than the interpretation of a higher universal proposition, appears to me unphilosophical. Mr. Mill says with truth (in his admirable chapter explaining the real function of the major premiss in a Syllogism, p. 211), that the individual cases are all the evidence which we possess; the step from them to universal propositions ought not to be expressed in forms which suppose universal propositions to be already attained.

We must presume Syllogisms without a middle term, when we read:—"The Syllogism through a middle term is *by nature* prior, and of greater cognitive efficacy; but *to us* the Syllogism through Induction is plainer and clearer."* Nor, indeed, is the saying, when literally taken, at all well-founded; for the pretended Syllogisms from Induction and Example, far from being clear and plain, are more involved and difficult to follow than *Barbara* and *Celarent*. Yet the substance of Aristotle's thought is true and important, when considered as declaring the antithesis (not between varieties of Syllogisms, but) between Induc-

I will here add that, though Aldrich himself (as I stated at the beginning of this note) treats the argument from Induction as a defective or informal Syllogism, his anonymous Oxonian editor and commentator takes a sounder view. He says (pp. 176, 177, 184, ed. 1823, Oxon.):—

"The principles acquired by human powers may be considered as twofold. Some are *intuitive*, and are commonly called Axioms; the other class of general principles are those acquired by Induction. But it may be doubted whether this distinction is correct. It is highly probable, if not certain, that those primary Axioms generally esteemed *intuitive*, are in fact acquired by an inductive process; although that process is less discernible, because it takes place long before we think of tracing the actings of our own minds. It is often found necessary to facilitate the understanding of those Axioms, when they are first proposed to the judgment, by illustrations drawn from individual cases. But whether it is, as is generally supposed, the mere *enunciation* of the principle, or the *principle itself*, which requires the illustration, may admit of a doubt. It seems probable, however, that such illustrations are nothing more than a recurrence to the original method by which the knowledge of those principles was acquired. Thus, the repeated trial or observation of the necessary connection between mathematical coincidence and equality, first authorizes the general position or Axiom relative to that subject. If this conjecture is founded in fact, it follows that both *primary* and *ultimate* principles have the same nature and are alike acquired by the exercise of the inductive faculty."

"Those who acquiesce in the preceding observations will feel a regret to find *Induction* classed among defective or informal Syllogisms. It is in fact prior in its order to Syllogism; nor can syllogistic reasoning be carried on to any extent without previous Induction" (p. 184).

* Analyt. Prior. II. xxiii. p. 68, b. 35: *φύσει μὲν οὖν πρότερος καὶ γνωριμώτερος ὁ διὰ τοῦ μέσου συλλογισμός, ἡμῖν δ' ἐναργέστερος ὁ διὰ τῆς ἐπαγωγῆς.*

tion and Example on the one part, and Syllogism (Deduction) on the other. It is thus that he sets out the same antithesis elsewhere, both in the Analytica Posteriora and the Topica.* Prior and more cognizable *by nature* or *absolutely*, prior and more cognizable *to us* or *in relation to us*—these two are not merely distinct, but the one is the correlate and antithesis of the other.

To us the particulars of sense stand first, and are the earliest objects of knowledge. *To us*, means to the large variety of individual minds, which grow up imperceptibly from the simple capacities of infancy to the mature accomplishments of adult years; each acquiring its own stock of sensible impressions, remembered, compared, associated; and each learning a language, which both embodies in general terms and propositions the received classification of objects, and communicates the current emotional beliefs. We all begin by being learners; and we ascend by different paths to those universal notions and beliefs which constitute the common fund of the advanced intellect; developed in some minds into *principia* of philosophy with their consequences. *By nature*, or *absolutely*, these *principia* are considered as prior, and as forming the point of departure: the advanced position is regarded as gained, and the march taken is not that of the novice, but that of the trained adult, who having already learnt much, is doubly equipped either for learning more or for teaching others; who thus stands

* Analyt. Post. I. ii. p. 72, a. 2, b. 29; Ethic. Nik. VI. iii. p. 1139, b. 28: *ἡ μὲν δὴ ἐπαγωγὴ ἀρχή ἐστι καὶ τοῦ καθόλου, ὁ δὲ συλλογισμὸς ἐκ τῶν καθόλου. εἰσὶν ἄρα ἀρχαὶ ἐξ ὧν ὁ συλλογισμός, ὧν οὐκ ἔστι συλλογισμός· ἐπαγωγὴ ἄρα.* Compare Topica, I. xii. p. 105, a. 11; VI. iv. pp. 141, 142; Physica, I. i. p. 184, a. 16; Metaphysic. E. iv. p. 1029, b. 4-12. Compare also Trendelenburg's explanation of this doctrine, Erläuterungen zu den Elementen der Aristotelischen Logik, sects. 18, 19, 20, p. 33, seq.

on a summit from whence he surveys nature as a classified and coherent whole, manifesting herself in details which he can interpret and sometimes predict. The path of knowledge, seen *relatively to us*, is one through particulars, by way of example to fresh particulars, or by way of induction to universals. The path of knowledge, *by nature or absolutely*, is from universals by way of deduction either to new universals or to new particulars. By the cognitive *nature* of man, Aristotle means the full equipment, of and for cognition, which our mature age exhibits; *notiora naturâ* are the acquisitions, points of view, and processes, familiar in greater or less perfection to such mature individuals and societies. *Notiora nobis* are the facts and processes with which all of us begin, and which belong to the intellect in its highest as well as its lowest stage; though, in the higher stages, they are employed, directed, and modified, by an acquired intellectual capital, and by the permanent machinery of universal significant terms in which that capital is invested.

Such is the antithesis between *notiora naturâ* (or *simpliciter*) and *notiora nobis* (or *quoad nos*), which Aristotle recognizes as a capital point in his philosophy, and insists upon in many of his writings. The antithesis is represented by Example and Induction, in the point of view—*quoad nos*—last mentioned; by Syllogism or Deduction, in the other point of view—*naturâ*. Induction (he says),[a] or the rising from par-

[a] Aristot. Topica, I. xii. p. 105, a. 13-19: ἐπαγωγὴ δὲ ἡ ἀπὸ τῶν καθ' ἕκαστον ἐπὶ τὰ καθόλου ἔφοδος· οἷον εἰ ἔστι κυβερνήτης ὁ ἐπιστάμενος κράτιστος καὶ ἡνίοχος, καὶ ὅλως ἐστὶν ὁ ἐπιστάμενος περὶ ἕκαστον ἄριστος. ἔστι δ' ἡ μὲν ἐπαγωγὴ πιθανώτερον καὶ σαφέστερον καὶ κατὰ τὴν αἴσθησιν γνωριμώτερον, καὶ τοῖς πολλοῖς κοινόν· ὁ δὲ συλλογισμὸς βιαστικώτερον καὶ πρὸς τοὺς ἀντιλογικοὺς ἐνεργέστερον. Also the same treatise, VI. iv. p. 141, b. 17.

The inductive interrogations of

ticulars to universals, is plainer, more persuasive, more within the cognizance of sensible perception, more within the apprehension of mankind generally, than Syllogism; but Syllogism is more cogent and of greater efficacy against controversial opponents. What he affirms here about Induction is equally true about the inference from Example, that is, the inference from one or some particulars, to other analogous particulars; the rudimentary intellectual process, common to all human and to many animal minds, of which Induction is an improvement and an exaltation. While Induction will be more impressive, and will carry assent more easily with an ordinary uncultivated mind, an acute disputant may always deny the ultimate inference, for the denial involves no contradiction. But the rightly constructed Syllogism constrains assent;[a] the disputant cannot grant the premisses and deny the conclusion without contradicting himself. The constraining force, however, does not come into accurate and regulated working until the principles and conditions of deductive reasoning have been set forth—until the Syllogism has been analysed, and the characteristics of its validity, as distinguished from its invalidity, have been marked out. This is what Aristotle teaches in the Analytica and Topica. It admits of being set out in regular figure and mode—forms of premisses with the conclusion appropriate to each; and the lesson must be learnt before we can know how far the force of deductive reasoning, which begins

Sokrates relating to matters of common life, and the way in which they convinced ordinary hearers, are strikingly illustrated in the Memorabilia of Xenophon, especially IV. vi.: πολὺ μάλιστα ὧν ἐγὼ οἶδα, ὅτε λέγοι, τοὺς ἀκούοντας ὁμολογοῦντας παρεῖχεν (15). The same can hardly be said of the Platonic dialogues.

[a] Bacon, Novum Organ. I. Aphor. 13:—"Syllogismus assensum constringit, non res."

with the *notiora naturâ*, is legitimately binding and trustworthy.

Both the two main points of Aristotle's doctrine—the antithesis between Induction and Deduction, and the dependence of the latter process upon premisses furnished by the former, so that the two together form the two halves of complete ratiocination and authoritative proof—both these two are confused and darkened by his attempt to present the Inductive inference and the Analogical or Paradeigmatic inference as two special forms of Syllogistic deduction.* But when we put aside this attempt, and adhere to Aristotle's main doctrine—of Induction as a process antithetical to and separate from Deduction, yet as an essential preliminary thereto,—we see that it forms the basis of that complete and comprehensive System of Logic, recently elaborated in the work of Mr. John Stuart Mill. The inference from Example (*i.e.* from some particulars to other similar particulars) is distinguished by Aristotle from Induction, and is recognized by him as the primitive intellectual energy, common to all men, through which Induction is reached; its results he calls Experience (ἐμπειρία), and he describes it as the real guide, more essential than philosophical generalities,

* Heyder (in his learned treatise, Darstellung der Aristotelischen und Hegelschen Dialektik, p. 226), after having considered the unsatisfactory process whereby Aristotle attempts to resolve Induction into a variety of Syllogism, concludes by a remark which I think just:—"Aus alle dem erhellt zur Genüge, dass sich Aristoteles bei dem Versuch die Induction auf eine Schlussform zurückzuführen, selbst sich nicht recht befriedigt fühlte, und derselbe wohl nur aus seinem durchgängigen Bestreben zu erklären ist, alles wissenschaftliche Verfahren in die Form des Schlusses zu bringen; dass dagegen, seiner eigentlichen Meinung und der strengen Consequenz seiner Lehre zu Folge, die Induction zum syllogistischen und beweisenden Verfahren einen in dem Begriff der beiden Verfahrungsweisen liegenden Gegensatz bildete, was sich ihm dann auch auf das Verhältniss der Induction zur Begriffsbestimmung ausdehnen musste."

to exactness of performance in detail.* Mr. John Mill has been the first to assign to Experience, thus understood, its full value and true position in the theory of Ratiocination; and to shew that the Paradeigmatic process exhibits the prime and ultimate reality of all Inference, the real premisses and the real conclusion which Inference connects together. Between these two is interposed the double process of which Induction forms the first half and Deduction the second; neither the one nor the other being indispensable to Inference, but both of them being required as securities for Scientific inference, if we desire to have its correctness tested and its sufficiency certified; the real evidence, whereby the conclusion of a Syllogism is proved, being the minor premiss, together with (not the major premiss itself, but) the assemblage of particular facts from which by Induction the major premiss is drawn. Now Aristotle had present to his mind the conception of Inference as an entire process, enabling us from some particular truths to discover and prove other particular truths: he considers it as an unscientific process, of which to a limited extent other animals besides man are capable, and which, as operative under the title of Experience in mature practical men, is a safer guide than Science amidst the doubts and difficulties of action. Upon this foundation he erects the superstructure of Science; the universal propositions acquired through Induction, and applied again to particulars or to lower generalities, through the rules of the deductive Syl-

* Aristot. Analyt. Prior. II. xxiii. p. 68, b. 12; xxvi. p. 69, a. 17. Analyt. Post. II. xix. p. 99, b. 30, seq.; xiii. p. 97, b. 7. Topica, VIII. i. p. 155, b. 35; p. 156, b. 10; p. 157, a. 14-23; p. 160, a. 36. Metaphys. A. i. p. 980, b. 25- p. 981, a. 30. This first chapter of the Metaphysica is one of the most remarkable passages of Aristotle, respecting the analytical philosophy of mind.

logism. He signalizes, with just emphasis, the universalizing point of view called Science or Theory; but he regards it as emerging from particular facts, and as travelling again downwards towards particular facts. The misfortune is, that he contents himself with barely recognizing, though he distinctly proclaims the necessity of, the inductive part of this complex operation; while he bestows elaborate care upon the analysis of the deductive part, and of the rules for conducting it. From this disproportionate treatment, one half of Logic is made to look like the whole; Science is disjoined from Experience, and is presented as consisting in Deduction alone; every thing which is not Deduction, is degraded into unscientific Experience; the major premiss of the Syllogism being considered as part of the proof of the conclusion, and the conclusion being necessarily connected therewith, we appear to have acquired a *locus standi* and a binding cogency such as Experience could never supply; lastly, when Aristotle resolves Induction into a peculiar variety of the Syllogism, he appears finally to abolish all its separate dignity and jurisdiction. This one-sided view of Logic has been embraced and perpetuated by the Aristotelian expositors, who have carefully illustrated, and to a certain extent even amplified, the part which was already in comparative excess, while they have added nothing to the part that was in defect, and have scarcely even preserved Aristotle's recognition of it as being not merely legitimate but essential. The vast body of Inductive Science, accumulated during the last three centuries, has thus, until recently, been allowed to grow up, as if its proofs and processes had nothing to do with Logic.

But though this restricted conception of Logic or the theory of Reasoning has arisen naturally from Aristotle's treatment, I maintain that it does not adequately repre-

sent his view of that theory. In his numerous treatises on other subjects, scarcely any allusion is made to the Syllogism; nor is appeal made to the rules for it laid down in the Analytica. His conviction that the formalities of Deduction were only one part of the process of general reasoning, and that the value of the final conclusion depended not merely upon their being correctly performed, but also upon the correctness of that initial part whereby they are supplied with matter for premisses—is manifested as well by his industry (unrivalled among his contemporaries) in collecting multifarious facts, as by his specific declarations respecting Induction. Indeed a recent most erudite logician, Sir William Hamilton, who insists upon the construction of Logic in its strictest sense as purely formal, blames Aristotle[a] for having transgressed this boundary, and for introducing other considerations bearing on diversities of matter and of material evidence. The charge so made, to whatever extent it is well-founded, does rather partake of the nature of praise; inasmuch as it evinces Aristotle's larger views of the theory of Inference, and confirms his own statement that the Deductive process was only the last half of it, presupposing a prior Induction. It is only this last half that Aristotle has here analysed, setting forth its formal conditions with precepts founded thereupon; while he claims to have accomplished the work by long and patient investigation, having found not the smallest foundation laid by others, and bespeaks indulgence[b] as for a first attempt requiring to be brought to completion by others. He made this first step for himself;

[a] See his Discussions on Philosophy, p. 139, seq.; Lectures on Logic, vol. i. p. 27.

[b] See the remarkable paragraph at the close of the Sophistici Elenchi, already quoted (supra, p. 201, note).

and if any one would make a second step, so as to apply the same analysis to the other half, and to bring out in like manner the formal conditions and principles of Induction, we may fairly believe that Aristotle would have welcomed the act, as filling up what he himself recognized to be a gap in the entire compass of Reasoning. As to his own achievement, it is certain that he could not have composed the Analytica and Topica, if he had not had before him many specimens of the deductive process to study and compare. Neither could the inductive process have been analysed, until after the examples of successful advance in inductive science which recent years have furnished. Upon these examples, mainly, has been based the profound System of Mr. John Stuart Mill, analysing and discriminating the formalities of Induction in the same way as those of Deduction had before been handled by Aristotle; also fusing the two together as co-operative towards one comprehensive scheme of Logic —the Logic of Evidence generally, or of Truth as discoverable and proveable. In this scheme the Syllogistic Theory, or Logic of Consistency between one proposition and others, is recognized as an essential part, but is no longer tolerated as an independent whole.[a]

[a] Mr. John Stuart Mill says (Bk. II. ch. i. sect. 3): "Induction is inferring a proposition from premisses *less general* than itself, and Ratiocination is inferring a proposition from premisses *equally or more general*." Again in another passage: "We have found that all Inference, consequently all Proof, and all discovery of truths not self-evident, consists of inductions, and the interpretation of inductions; that all our knowledge, not intuitive, comes to us exclusively from that source. What Induction is, therefore, and what conditions render it legitimate, cannot but be deemed the main question of logic—the question which includes all others. It is however one which professed writers on logic have almost entirely passed over. The generalities of the subject, indeed, have not been altogether neglected by metaphysicians; but, for want of sufficient acquaintance with the pro-

After adverting to another variety of ratiocinative procedure, which he calls *Apagoge* or Abduction (where the minor is hardly more evident than the conclusion, and might sometimes conveniently become a conclusion first to be proved),[a] Aristotle goes on to treat of Objection generally — the function of the dialectical respondent. The *Enstasis* or Objection is a proposition opposed not to a conclusion, but to the proposition set up by the defendant. When the proposition set up by him is universal, as it must be if he seeks to establish an universal conclusion, your objection may be either universal or particular: you may deny either the whole of his proposition, or only one portion of the particulars

cesses by which science has actually succeeded in establishing general truths, their analysis of the inductive operation, even when unexceptionable as to correctness, has not been specific enough to be made the foundation of practical rules, which might be for Induction itself what the rules of the Syllogism are for interpretation of Induction" (Bk. III. ch. i. s. 1, p. 313.)—"The business of Inductive Logic is to provide rules and models (such as the Syllogism and its rules are for ratiocination) to which if inductive arguments conform, those arguments are conclusive, and not otherwise. This is what the Four Methods profess to be, and what I believe they are universally considered to be by experimental philosophers, who had practised all of them long before any one sought to reduce the practice to theory" (Bk. III. ch. ix. s. 5, p. 471, 5th ed.)—See also the same point of view more copiously set forth, in Mr. Mill's later work, 'Examination of Sir W. Hamilton's Philosophy' (ch. xx. pp. 454-462, 3rd ed.): "It is only as a means to material truth that the formal (or to speak more clearly, the conditional) validity of an operation of thought is of any value; and even that value is only negative: we have not made the smallest positive advance towards right thinking, by merely keeping ourselves consistent in what is perhaps systematic error. This by no means implies that Formal Logic, even in its narrowest sense, is not of very great, though purely negative value."—"Not only however is it indispensable that the larger Logic, which embraces all the general conditions of the ascertainment of truth, should be studied in addition to the smaller Logic, which only concerns itself with the conditions of consistency; but the smaller Logic ought to be (at least, finally) studied as part of the greater—as a portion of the means to the same end; and its relation to the other parts—to the other means—should be distinctly displayed."

[a] Analyt. Prior. II. xxv. p. 69, a 20-36.

contained under it; the denial of one single particular, when substantiated, being enough to overthrow his universal. Accordingly, your objection, being thus variously opposed to the proposition, will lie in the syllogistic figures which admit opposite conclusions; that is, either in the First or Third; for the Second figure admits only negative conclusions not opposed to each other. If the defendant has set up an Universal Affirmative, you may deny the whole and establish a contrary negative, in the First figure; or you may deny a part only, and establish a contradictory negative, in the Third figure. The like, if he has set up an Universal Negative: you may impugn it either by an universal contrary affirmative, in the First figure; or by a particular contradictory affirmative, in the Third figure.[a]

The Enthymeme is a syllogism from Probabilities or Signs;[b] the two being not exactly the same. *Probabilities* are propositions commonly accepted, and true in the greater number of cases; such as, Envious men hate those whom they envy, Persons who are beloved look with affection on those who love them. We call it a *Sign*, when one fact is the antecedent or consequent of another, and therefore serves as mark or

[a] Analyt. Prior. II. xxvi. p. 69, a. 37-b. 37.

In objecting to A *universally*, you take a term comprehending the original subject; in objecting *particularly*, a term comprehended by it. Of the new term in each case you deny the original predicate, and have thus, as a major premiss, E. For a minor premiss, you affirm, in the first case, the new term as predicate of the original subject (less comprehensive); in the second case, the original subject (more comprehensive) as predicate of the new term. This gives you, in the first case, a conclusion in *Celarent* (Fig. I.), and, in the second, a conclusion in *Felapton* (Fig. III.); opposed, the one universally or contrarily, the other particularly or contradictorily, to the original proposition.

[b] Analyt. Prior. II. xxvii. p. 70, a. 10: *ἐνθύμημα μὲν οὖν ἐστὶ συλλογισμὸς ἐξ εἰκότων ἢ σημείων· λαμβάνεται δὲ τὸ σημεῖον τριχῶς, ὅσαχῶς καὶ τὸ μέσον ἐν τοῖς σχήμασι.*

evidence thereof. The conjunction may be either constant, or frequent, or merely occasional: if constant, we obtain for the major premiss of our syllogism a proposition approaching that which is universally or necessarily true; if not constant but only frequent or occasional, the major premiss of our syllogism will at best only be probable. The constant conjunction will furnish us with a Syllogism or Enthymeme in the First figure; the significant mark being here a genuine middle term—subject in the major premiss, and predicate in the minor. We can then get a conclusion both affirmative and universally true. In other cases, we cannot obtain premisses for a syllogism in the First figure, but only for a syllogism in the Second or Third. In the Third figure, since we get by right no universal conclusions at all, but only particular conclusions, the conclusion of the Enthymeme, though it may happen to be true, is open to refutation. Where by the laws of Syllogism no affirmative conclusion whatever is possible, as in the Second figure, the conclusion obtained by Enthymeme is altogether suspicious. In contrast with the Sign in these figures, that which enters as an effective middle term into the First figure, should be distinguished under the name of *Proof* (τεκμήριον.)[a]

[a] Analyt. Prior. II. xxvii. p. 70, a. 31-b. 6.

Aristotle throws in the remark (a. 24), that, when one premiss only of the Enthymeme is enunciated, it is a Sign; when the other is added, it becomes a Syllogism. In the examples given to illustrate the description of the Enthymeme, that which belongs to the First figure has its three terms and two propositions specified like a complete and regular Syllogism; but when we come to the Third and Second figures, Aristotle gives two alternate ways of stating each: one way in full, with both premisses enunciated, constituting a normal, though invalid, Syllogism; the other way, with only one of the premisses enunciated, the other being suppressed as well-known and familiar.

Among logicians posterior to Aristotle, the definition given of the Enthymeme, and supposed to be derived from Aristotle was, that it was a Syllogism with one of the

Aristotle concludes his Analytica Priora by applying this doctrine of Signs to determine the limits within which Physiognomy as a science is practicable. The basis upon which it rests is this general fact or postulate: That in all natural affections of the animal, bodily changes and mental changes accompany each other. The former, therefore, may become signs or proofs of the latter,* if, in each class of animals, we can discriminate the one specific bodily phenomenon which attaches to each mental phenomenon. Thus, the lion is a courageous animal. What is the bodily sign accompanying a courageous disposition? It is (we assume here) the having extremities of great size. This belongs to all lions, as a *proprium*; in the sense that, though it may or does belong also to some individuals of other races (as men), it does not belong to any other entire race. Physiognomy as a science will, then, be possible, if we can find races of animals which have only one characteristic mental attribute, and if we can discover what is the

premisses suppressed—*μονολήμματος*. Sir W. Hamilton has impugned this doctrine, and has declared the definition to be both absurd in itself, and not countenanced by Aristotle. (Lectures on Logic, Vol. I. Lect. xx. p. 386, seq.) I think Hamilton is mistaken on this point. (See Mr. Cope's Introd. to Arist. Rhetoric, p. 103, seq.) Even in the present chapter Aristotle distinctly alludes to the monolemmatic enunciation of the Enthymeme as one mode of distinguishing it from a full Syllogism; and in the Rhetorica he brings out this characteristic still more forcibly. The distinction is one which belongs to Rhetoric more than to Logic: the rhetor, in enunciating his premisses, must be careful not to weary his auditors; he must glance at or omit reasons that are familiar to them; logical fulness and accuracy would be inconsistent with his purpose. The writers subsequent to Aristotle, who think much of the rhetorical and little of the logical point of view, bring out the distinction yet more forcibly. But the rhetorical mode of stating premisses is often not so much an omission either of major or minor, as a confused blending or packing up of both into one.

* Analyt. Prior. II. xxvii. p. 70, b. 7-16: *εἴ τις δίδωσιν ἅμα μεταβάλλειν τὸ σῶμα καὶ τὴν ψυχήν, ὅσα φυσικά ἐστι παθήματα·—συμπάσχειν γὰρ ἀλλήλοις ὑποκεῖται.* See the Aristotelian treatise entitled *Φυσιογνωμονικά*, pp. 808-809, Bekk.

physical attribute correlating with it.[a] But the difficulties are greater when the same race has two characteristic mental attributes (*e. g.* lions are both courageous and generous), each with its correlative physical attribute; for how can we tell which belongs to which? We have then to study individuals of other races possessing one of these attributes without the other; thus, if we find that courageous men, who are not generous, agree in having large extremities, we may infer that this last circumstance is, in the lion, the correlative mark of his courage and not of his generosity. The physiognomonic inference will be expressed by a syllogism in the First figure, in which the major term (A) reciprocates and is convertible with the middle term (B), while B stretches beyond (or is more extensive than) the minor (C); this relation of the terms being necessary, if there is to be a single mark for a particular attribute.[b]

Here the treatise ends; but the reader will remember that, in describing the canons laid down by Aristotle for the Syllogism with its three Figures and the Modes contained therein, I confined myself to the simple Assertory syllogism, postponing for the moment the long expositions added by him about Modal syllogisms, involving the Possible and the Necessary. What is proper to be said about this complicated and useless portion of the Analytica Priora, may well come in here; for, in truth, the doctrines just laid down about Probabilities, Signs, and Proofs, bring us back to the Modals under a different set of phrases. The Possible or Problematical

[a] Analyt. Prior. II. xxvii. p. 70, b. 22. About the characteristics of the lion see Aristot. Physiognom. p. 809, b. 14-36: *τὰ περὶ τὴν ψυχὴν δοτικὸν καὶ ἐλεύθερον, μεγαλόψυχον καὶ φιλόνικον, καὶ πρᾶυ καὶ δίκαιον καὶ φιλόστοργον πρὸς ἃ ἂν ὁμιλήσῃ.*

[b] Analyt. Prior. II. xxvii. p. 70, b. 31-36.

is that, of the occurrence or reality of which we doubt, neither believing nor disbelieving it, not being prepared to assert either that it is, or that it is not; *that which may be or may not be.* It is our manner of speaking, when we have only signs or probabilities to guide us, and not certain proofs. The feeling of doubt is, as a psychological phenomenon, essentially distinct from the feeling of belief which, in its objective aspect, correlates with certainty or matter of fact; as well as from the feeling of disbelief, the correlate of which can only be described negatively. Every man knows these feelings by his own mental experience. But in describing the feeling of doubt, as to its matter or in its objective aspect, we must take care to use phrases which declare plainly both sides of is disjunctive or alternative character. The Possible is, *That which either may be or may not be.* As *That which may be*, it stands opposed to the Impossible; as *That which may not be*, it stands opposed to the Necessary. It thus carries with it negation both of impossibility and of necessity; but, in common parlance, the first half of this meaning stands out prominently, and is mistaken for the whole. Aristotle, as we saw previously, speaks equivocally on this point, recognizing a double signification of the term: he sometimes uses it in the sense opposed only to impossible, maintaining that what is necessary must also be possible; sometimes in the truer sense, opposed both to necessity and to impossibility.*

The Possible or Problematical, however, in this latter complete sense—*What may or may not be*—exhibits various modifications or gradations. 1. The chances

* Aristot. De Interpret. xiii. p. 22. Analyt. Prior. I xiii. p. 32, a. 21, 29, 36; xiv. p. 33, b. 22; xix. p. 38, a. 35.

on either side may be conceived as perfectly equal, so that there is no probability, and we have no more reason for expecting one side of the alternative than the other; the sequence or conjunction is indeterminate. Aristotle construes this indeterminateness in many cases (not as *subjective*, or as depending upon our want of complete knowledge and calculating power, but) as *objective*, insuperable, and inherent in many phenomenal agencies; characterizing it, under the names of Spontaneity and Chance, as the essentially unpredictable. 2. The chances on both sides may be conceived as unequal and the ratio between them as varying infinitely: the usual and ordinary tendency of phenomena—what Aristotle calls Nature—prevails in the majority of cases, but not in all; being liable to occasional counteraction from Chance and other forces. Thus, between Necessity and perfect constancy at one extreme (such as the rotation of the sidereal sphere), and Chance at the other, there may be every shade of gradation; from natural agency next below the constant, down to the lowest degree of probability.[a]

Now, within the range of these limits lie what Aristotle describes as Signs and Probabilities; in fact, all the marks which we shall presently come to as distinguishing the *dialectical* syllogism from the *demonstrative*. But here is involved rather the matter of the Syllogism than its form. The form indeed is so far implicated, that (as Aristotle justly remarks at the end of the Analytica Priora[b]), the First figure is the only one that will prove both conjunctions and disjunctions,

[a] Analyt. Prior. I. xiii. p. 32, b. 5-19. τὸ δ' ἀόριστον τῷ μηδὲν μᾶλλον οὕτως ἢ ἐκείνως. Compare Metaphys. K. p. 1064, b. 32.

[b] Analyt. Prior. II. xxvii. p. 70, a. 2-38. Compare what is said here about εἰκός, σημεῖον, τεκμήριον, with the first chapter of the Topica, and the dialectic syllogism as there described: ὁ ἐξ ἐνδόξων συλλογιζόμενος.

as well constant as occasional; the Third figure proves only occasional conjunctions and occasional disjunctions, not constant; the Second figure will prove no conjunctions at all, but only disjunctions, constant as well as occasional. Here a difference of form is properly pointed out as coupled with and founded on a difference of matter. But the special rules given by Aristotle, early in the present treatise, for the conversion of Modal Propositions, and the distinctions that he draws as to the modal character of the conclusion according as one or other of the premisses belongs to one or other of the different modes,—are both prolix and of little practical value.*

What he calls the Necessary might indeed, from the point of view now reached, cease to be recognized as a separate mode at all. The Certain and the Problematical are real modes of the Proposition; objective correlates to the subjective phases called Belief and Doubt. But no proposition can be more than certain: the word *necessary*, in strictness, implies only a peculiarity of the evidence on which our belief is grounded. Granting certain given premisses to be true, a given conclusion must be true also, if we would avoid inconsistency and contradiction.

* Analyt. Prior. I. viii.-xxii. p. 29, b. 29-p. 40, b. 16.

CHAPTER VII.

ANALYTICA POSTERIORA I.

IN the two books of Analytica Priora, Aristotle has carried us through the full doctrine of the functions and varieties of the Syllogism; with an intimation that it might be applied to two purposes—Demonstration and Dialectic. We are now introduced to these two distinct applications of the Syllogism: first, in the Analytica Posteriora, to Demonstration; next, in the Topica, to Dialectic. We are indeed distinctly told that, as far as the forms and rules of Syllogism go, these are alike applicable to both;* but the difference of matter and purpose in the two cases is so considerable as to require a distinct theory and precepts for the one and for the other.

The contrast between Dialectic (along with Rhetoric) on the one hand and Science on the other is one deeply present to the mind of Aristotle. He seems to have proceeded upon the same fundamental antithesis as that which appears in the Platonic dialogues; but to have modified it both in meaning and in terminology, dismissing at the same time various hypotheses with which Plato had connected it.

The antithesis that both thinkers have in view is Opinion or Common Sense *versus* Science or Special Teaching and Learning; those aptitudes, acquirements, sentiments, antipathies, &c., which a man imbibes and

* Analyt. Prior. I. xxx. p. 46, a. 4-10; Analyt. Post. I. ii. p. 71, a. 23.

appropriates insensibly, partly by his own doing and suffering, partly by living amidst the drill and example of a given society—as distinguished from those accomplishments which he derives from a teacher already known to possess them, and in which both the time of his apprenticeship and the steps of his progress are alike assignable.

Common Sense is the region of Opinion, in which there is diversity of authorities and contradiction of arguments without any settled truth; all affirmations being particular and relative, true at one time and place, false at another. Science on the contrary deals with imperishable Forms and universal truths, which Plato regards, in their subjective aspect, as the innate, though buried, furniture of the soul, inherited from an external pre-existence, and revived in it out of the misleading data of sense by a process first of the cross-examining *Elenchus*, next of scientific Demonstration. Plato depreciates altogether the untaught, unexamined, stock of acquirements which passes under the name of Common Sense, as a mere worthless semblance of knowledge without reality; as requiring to be broken up by the scrutinizing *Elenchus*, in order to impress a painful but healthy consciousness of ignorance, and to prepare the mind for that process of teaching whereby alone Science or Cognition can be imparted.[a] He admits that Opinion may be right as well as wrong. Yet even when right, it is essentially different from Science, and is essentially transitory; a safe guide to action while it lasts, but not to be trusted for stability or permanence.[b] By Plato, Rhetoric is treated as belonging to the province

[a] Plato, Sophistes, pp. 228-229; Symposion, pp. 203-204; Theætetus, pp. 148, 149, 150. Compare also 'Plato and the Other Companions of Sokrates,' Vol. I. chs. vi.-vii. pp. 245-288; II. ch. xxvi. p. 376, seq.

[b] Plato, Republic. v. pp. 477-478; Menon, pp. 97 98.

of Opinion, Dialectic to that of Science. The rhetor addresses multitudes in continuous speech, appeals to received common places, and persuades: the dialectician, conversing only with one or a few, receives and imparts the stimulus of short question and answer; thus awakening the dormant capacities of the soul to the reminiscence of those universal Forms or Ideas which are the only true Knowable.

Like Plato, Aristotle distinguishes the region of Common Sense or Opinion from that of Science, and regards Universals as the objects of Science. But his Universals are very different from those of Plato: they are not self-existent realities, known by the mind from a long period of pre-existence, and called up by reminiscence out of the chaos of sensible impressions. To operate such revival is the great function that Plato assigns to Dialectic. But in the philosophy of Aristotle Dialectic is something very different. It is placed alongside of Rhetoric in the region of Opinion. Both the rhetor and the dialectician deal with all subjects, recognizing no limit; they attack or defend any or all conclusions, employing the process of ratiocination which Aristotle has treated under the name of Syllogism; they take up as premisses any one of the various opinions in circulation, for which some plausible authority may be cited; they follow out the consequences of one opinion in its bearing upon others, favourable or unfavourable, and thus become well furnished with arguments for and against all. The ultimate foundation here supposed is some sort of recognized presumption or authoritative sanction* — law, custom, or creed, established among this or that portion of mankind, some maxim enunciated

* Aristot. Topica, I. x. p. 104, a. 8, xi. p. 104, b. 19. Compare Metaphysica, A. p. 995, a. 1-10.

by an eminent poet, some doctrine of the Pythagoreans or other philosophers, current proverb, answer from the Delphian oracle, &c. Any one of these may serve as a dialectical authority. But these authorities, far from being harmonious with each other, are recognized as independent, discordant, and often contradictory. Though not all of equal value,[a] each is sufficient to warrant the setting up of a thesis for debate. In Dialectic, one of the disputants undertakes to do this, and to answer all questions that may be put to him respecting the thesis, without implicating himself in inconsistencies or contradiction. The questioner or assailant, on the other hand, shapes his questions with a view to refute the thesis, by eliciting answers which may furnish him with premisses for some syllogism in contradiction thereof. But he is tied down by the laws of debate to syllogize only from such premisses as the respondent has expressly granted; and to put questions in such manner that the respondent is required only to give or withhold assent, according as he thinks right.

We shall see more fully how Aristotle deals with Dialectic, when we come to the Topica: here I put it forward briefly, in order that the reader may better understand, by contrast, its extreme antithesis, viz., Demonstrative Science and Necessary Truth as conceived by Aristotle. First, instead of two debaters, one of whom sets up a thesis which he professes to understand and undertakes to maintain, while the

[a] Analyt. Post. I. xix. p. 81, b. 18: *κατὰ μὲν οὖν δόξαν συλλογιζομένοις καὶ μόνον διαλεκτικῶς δῆλον ὅτι τοῦτο μόνον σκεπτέον, εἰ ἐξ ὧν ἐνδέχεται ἐνδοξοτάτων γίνεται ὁ συλλογισμός, ὥστ' εἰ καὶ ἔστι τι τῇ ἀληθείᾳ τῶν* AB *μέσον, δοκεῖ δὲ μή, ὁ διὰ τούτου συλλογιζόμενος συλλελόγισται διαλεκτικῶς· πρὸς δ' ἀλήθειαν ἐκ τῶν ὑπαρχόντων δεῖ σκοπεῖν.* Compare Topica, VIII. xii. p. 162, b. 27.

other puts questions upon it,—Demonstrative Science assumes a teacher who knows, and a learner conscious of ignorance but wishing to know. The teacher lays down premisses which the learner is bound to receive; or if they are put in the form of questions, the learner must answer them as the teacher expects, not according to his own knowledge. Secondly, instead of the unbounded miscellany of subjects treated in Dialectic, Demonstrative Science is confined to a few special subjects, in which alone appropriate premisses can be obtained, and definitions framed. Thirdly, instead of the several heterogeneous authorities recognized in Dialectic, Demonstrative Science has *principia* of its own, serving as points of departure; some *principia* common to all its varieties, others special or confined to one alone. Fourthly, there is no conflict of authorities in Demonstrative Science; its propositions are essential, universal, and true *per se*, from the commencement to the conclusion; while Dialectic takes in accidental premisses as well as essential. Fifthly, the *principia* of Demonstrative Science are obtained from Induction only; originating in particulars which are all that the ordinary growing mind can at first apprehend (*notiora nobis*), but culminating in universals which correspond to the perfection of our cognitive comprehension (*notiora naturâ*.)[a]

Amidst all these diversities, Dialectic and Demonstrative Science have in common the process of Syllogism, including such assumptions as the rules of syllogizing postulate. In both, the conclusions are hypothetically

[a] Aristot. Topica, VI. iv. p. 141, b. 3-14. οἱ πολλοὶ γὰρ τὰ τοιαῦτα προγωρίζουσιν· τὰ μὲν γὰρ τῆς τυχούσης, τὰ δ' ἀκριβοῦς καὶ περιττῆς διανοίας καταμαθεῖν ἐστίν. Compare in Analyt. Post. I. xii. pp. 77-78, the contrast between τὰ μαθήματα and οἱ διάλογοι.

true (*i.e.* granting the premisses to be so). But, in demonstrative syllogism, the conclusions are true universally, absolutely, and necessarily; deriving this character from their premisses, which Aristotle holds up as the cause, reason, or condition of the conclusion. What he means by Demonstrative Science, we may best conceive, by taking it as a small *τέμενος* or specially cultivated enclosure, subdivided into still smaller separate compartments—the extreme antithesis to the vast common land of Dialectic. Between the two lies a large region, neither essentially determinate like the one, nor essentially indeterminate like the other; an intermediate region in which are comprehended the subjects of the treatises forming the very miscellaneous Encyclopædia of Aristotle. These subjects do not admit of being handled with equal exactness; accordingly, he admonishes us that it is important to know how much exactness is attainable in each, and not to aspire to more.[a]

[a] Aristot. Ethic. Nikom. I. p. 1094, b. 12-25; p. 1098, a. 26-b. 8; Metaphys. A. p. 995, a. 15; Ethic. Eudem. I. p. 1216, b. 30-p. 1217, a. 17; Politic. VII. p. 1328, a. 19; Meteorolog. I. p. 338, a. 35. Compare Analyt. Post. I. xiii. p. 78, b. 32 (with Waitz's note, II. p. 335); and I. xxvii. p. 87, a. 31.

The passages above named in the Nikomachean Ethica are remarkable: *λέγοιτο δ' ἂν ἱκανῶς, εἰ κατὰ τὴν ὑποκειμένην ὕλην διασαφηθείη· τὸ γὰρ ἀκριβὲς οὐχ ὁμοίως ἐν ἅπασι τοῖς λόγοις ἐπιζητητέον, ὥσπερ οὐδ' ἐν τοῖς δημιουργουμένοις. τὴν ἀκρίβειαν μὴ ὁμοίως ἐν ἅπασιν ἐπιζητεῖν (χρή), ἀλλ' ἐν ἑκάστοις κατὰ τὴν ὑποκειμένην ὕλην, καὶ ἐπὶ τοσοῦτον ἐφ' ὅσον οἰκεῖον τῇ μεθοδῷ.* Compare Metaphys. E. p. 1025, b. 13: *ἀποδεικνύουσιν ἢ ἀναγκαίστερον ἢ μαλακώτερον.*

The different degrees of exactness attainable in different departments of science, and the reasons upon which such difference depends are well explained in the sixth book of Mr. John Stuart Mill's System of Logic, vol. II. chap. iii. pp. 422-425, 5th ed. Aristotle says that there can be no scientific theory or cognition about *τὸ συμβεβηκός*, which he defines to be that which belongs to a subject neither necessarily, nor constantly, nor usually, but only on occasion (Metaphys. E. p. 1026, b. 3, 26, 33; K. p. 1065, a. 1, meaning *τὸ συμβεβηκὸς μὴ καθ' αὑτό*,—Analyt. Post. I. 6, 75, a. 18; for he uses the term in two different senses—Metaph. Δ. p. 1025,

In setting out the process of Demonstration, Aristotle begins from the idea of teaching and learning. In every

a. 31). In his view, there can be no science except about constant conjunctions; and we find the same doctrine in the following passage of Mr. Mill:—

"Any facts are fitted, in themselves, to be a subject of science, which follow one another according to constant laws; although those laws may not have been discovered, nor even be discoverable by our existing resources. Take, for instance, the most familiar class of meteorological phenomena, those of rain and sunshine. Scientific inquiry has not yet succeeded in ascertaining the order of antecedence and consequence among these phenomena, so as to be able, at least in our regions of the earth, to predict them with certainty, or even with any high degree of probability. Yet no one doubts that the phenomena depend on laws. Meteorology not only has in itself every requisite for being, but actually is, a science; though from the difficulty of observing the facts upon which the phenomena depend (a difficulty inherent in the peculiar nature of those phenomena), the science is extremely imperfect; and were it perfect, might probably be of little avail in practice, since the data requisite for applying its principles to particular instances would rarely be procurable.

"A case may be conceived of an intermediate character between the perfection of science, and this its extreme imperfection. It may happen that the greater causes, those on which the principal part of the phenomena depends, are within the reach of observation and measurement; so that, if no other causes intervened, a complete explanation could be given, not only of the phenomenon in general, but of all the variations and modifications which it admits of. But inasmuch as other, perhaps many other, causes, separately insignificant in their effects, cooperate or conflict in many or in all cases with those greater causes, the effect, accordingly, presents more or less of aberration from what would be produced by the greater causes alone. Now if these minor causes are not so constantly accessible, or not accessible at all, to accurate observation, the principal mass of the effect may still, as before, be accounted for, and even predicted; but there will be variations and modifications which we shall not be competent to explain thoroughly, and our predictions will not be fulfilled accurately, but only approximately.

"It is thus, for example, with the theory of the Tides. And this is what is or ought to be meant by those who speak of sciences which are not *exact* sciences. Astronomy was once a science, without being an exact science. It could not become exact until not only the general course of the planetary motions, but the perturbations also, were accounted for and referred to their causes. It has become an exact science because its phenomena have been brought under laws comprehending the whole of the causes by which the phenomena are influenced, whether in a great or only in a trifling degree, whether in all or only in some cases, and assigning to each of those causes the share of effect that really belongs to it. The science of human nature falls far short of the standard of exactness now realized in Astronomy; but there is no reason that it should not be as much a science as Tidology is, or as Astronomy was when its calculations had only mastered the main phenomena, but not the perturbations."

variety thereof, some *præcognita* must be assumed, which the learner must know before he comes to be taught, and upon which the teacher must found his instruction.[a] This is equally true, whether we proceed (as in Syllogism) from the more general to the less general, or (as in Induction) from the particular to the general. He who comes to learn Geometry must know beforehand the figures called circle and triangle, and must have a triangular figure drawn to contemplate; he must know what is a unit or monad, and must have, besides, exposed before him what is chosen as the unit for the reasoning on which he is about to enter. These are the *præcognita* required for Geometry and Arithmetic. Some *præcognita* are also required preparatory to any and all reasoning: *e.g.*, the maxim of Identity (fixed meaning of terms and propositions), and the maxims of Contradiction and of Excluded Middle (impossibility that a proposition and its contradictory can either be both true or both false.)[b] The learner must thus know beforehand certain Definitions and Axioms, as conditions without which the teacher cannot instruct him in any demonstrative science.

Aristotle, here at the beginning, seeks to clear up a difficulty which had been raised in the time of Plato as between knowledge and learning. How is it possible to *learn* at all? is a question started in the Menon.[c] You either know a thing already, and, on this supposition, you do not want to learn it; or you do not know it, and in this case you cannot learn it, because, even when you have learnt, you cannot tell whether the matter learnt is what you were in search of. To this difficulty,

[a] Analyt. Post. I. i. pp. 71-72; Metaphys. A. ix. p. 992, b. 30.

[b] Aristot. Analyt. Post. I. i. p. 71, a. 11-17. ὅταν ἡ φῆσαι ἢ ἀποφῆσαι ἀληθές.

[c] Plato, Menon. p. 80.

the reply made in the Menon is, that you never *do* learn any thing really new. What you are said to learn, is nothing more than reminiscence of what had once been known in an anterior life, and forgotten at birth into the present life; what is supposed to be learnt is only the recall of that which you once knew, but had forgotten. Such is the Platonic doctrine of Reminiscence. Aristotle will not accept that doctrine as a solution; but he acknowledges the difficulty, and intimates that others had already tried to solve it without success. His own solution is that there are two grades of cognition: (1) the full, complete, absolute; (2) the partial, incomplete, qualified. What you already know by the first of these grades, you cannot be said to learn; but you may learn that which you know only by the second grade, and by such learning you bring your incomplete cognition up to completeness.

Thus, you have learnt, and you know, the universal truth, that every triangle has its three angles equal to two right angles; but you do not yet know that A B C, D E F, G H I, &c., have their two angles equal to two right angles; for you have not yet seen any of these figures, and you do not know that they *are* triangles. The moment that you see A B C, or hear what figure it is, you learn at one and the same time two facts: first, that it is a triangle; next, by virtue of your previous cognition, that it possesses the above-mentioned property. You knew this *in a certain way* or incompletely before, by having followed the demonstration of the universal truth, and by thus knowing that *every* triangle had its three angles equal to two right angles; but you did not know it absolutely, being ignorant that A B C was a triangle.[a]

[a] Aristot. Analyt. Post. I. i. p. 71 a. 17-b. 8: *ἔστι δὲ γνωρίζειν τὰ μὲν πρότερον γνωρίζοντα, τῶν δὲ καὶ ἅμα λαμβάνοντα τὴν γνῶσιν, οἷον ὅσα*

Aristotle proceeds to tell us what is meant by knowing a thing *absolutely* or completely (ἁπλῶς). It is when we

τυγχάνει ὄντα ὑπὸ τὸ καθόλου, ὧν ἔχει τὴν γνῶσιν. ὅτι μὲν γὰρ πᾶν τρίγωνον ἔχει δυσὶν ὀρθαῖς ἴσας, προῄδει· ὅτι δὲ τόδε τὸ ἐν τῷ ἡμικυκλίῳ τρίγωνόν ἐστιν, ἅμα ἐπαγόμενος ἐγνώρισεν.—πρὶν δ' ἐπαχθῆναι ἢ λαβεῖν συλλογισμόν, τρόπον μέν τινα ἴσως φατέον ἐπίστασθαι, τρόπον δ' ἄλλον οὔ. ὁ γὰρ μὴ ἴσμεν εἰ ἔστιν ἁπλῶς, τοῦτο πῶς ἴσμεν ὅτι δύο ὀρθὰς ἔχει ἁπλῶς; ἀλλὰ δῆλον ὡς ᾠδὶ μὲν ἐπίσταται, ὅτι καθόλου ἐπίσταται, ἁπλῶς δ' οὐκ ἐπίσταται.—οὐδὲν (οἶμαι) κωλύει, ὃ μανθάνει, ἔστιν ὡς ἐπίστασθαι, ἔστι δ' ὡς ἀγνοεῖν· ἄτοπον γὰρ οὐκ εἰ οἶδέ πως ὃ μανθάνει, ἀλλ' εἰ ᾠδί, οἷον ᾗ μανθάνει καὶ ὅς. (Compare also Anal. Post. I. xxiv. p. 86, a. 23, and Metaph. A. ii. p. 982, a. 8; Anal. Prior. II. xxi. p. 67, a. 5-b. 10.)

Aristotle reports the solution given by others, but from which he himself dissented, of the Platonic puzzle. The respondent was asked, Do you know that every Dyad is even?—Yes. Some Dyad was then produced, which the respondent did not know to be a Dyad; accordingly he did not know it to be even. Now the critics alluded to by Aristotle said that the respondent made a wrong answer; instead of saying I know that every Dyad is even, he ought to have said, Every Dyad *which I know to be a Dyad* is even. Aristotle pronounces that this criticism is incorrect. The respondent knows the conclusion which had previously been demonstrated to him; and that conclusion was, Every triangle has its three angles equal to two right angles; it was not, Every thing *which I know* to be a triangle has its three angles equal to two right angles. This last proposition had never been demonstrated, nor even stated: οὐδεμία γὰρ πρότασις λαμβάνεται τοιαύτη, ὅτι ὃν σὺ οἶδας ἀριθμόν, ἢ ὃ σὺ οἶδας εὐθύγραμμον, ἀλλὰ κατὰ παντός (b.3-5).

This discussion, in the commencement of the Analytica Posteriora (combined with Analyt. Priora, II. xxi.), is interesting, because it shows that even then the difficulties were felt, about the major proposition of the Syllogism, which Mr. John Stuart Mill has so ably cleared up, for the first time, in his System of Logic. See Book II. ch. iii. of that work, especially as it stands in the sixth edition, with the note there added, pp. 232-233. You affirm, in the major proposition of the Syllogism, that every triangle has its three angles equal to two right angles; does not this include the triangle A, B, C, and is it not therefore a *petitio principii*? Or, if it be not so, does it not assert more than you know? The Sophists (upon whom both Plato and Aistotle are always severe, but who were valuable contributors to the theory of Logic by fastening upon the weak points) attacked it on this ground, and raised against it the puzzle described by Aristotle (in this chapter), afterwards known as the Sophism entitled ὁ ἐγκεκαλυμμένος (see Themistius Paraphras. I. i.; also 'Plato and the Other Companions of Sokrates,' Vol. III. ch. xxxviii. p. 489). The critics whom Aristotle here cites and disapproves, virtually admitted the pertinence of this puzzle by modifying their assertion, and by cutting it down to "Everything *which we know to be a triangle* has its three angles equal to two right angles." Aristotle

believe ourselves to know the cause or reason through which the matter known exists, so that it cannot but be

finds fault with this modification, which, however, is one way of abating the excess of absolute and peremptory pretension contained in the major, and of intimating the want of a minor to be added for interpreting and supplementing the major; while Aristotle himself arrives at the same result by admitting that the knowledge corresponding to the major proposition is not yet absolute, but incomplete and qualified; and that it is only made absolute when supplemented by a minor.

The very same point, substantially, is raised in the discussion between Mr. John Stuart Mill and an opponent, in the note above referred to. "A writer in the 'British Quarterly Review' endeavours to show that there is no *petitio principii* in the Syllogism, by denying that the proposition All men are mortal, asserts or assumes that Socrates is mortal. In support of this denial, he argues that we may, and in fact do, admit the general proposition without having particularly examined the case of Socrates, and even without knowing whether the individual so named is a man or something else. But this of course was never denied. That we can and do draw inferences concerning cases specifically unknown to us, is the datum from which all who discuss this subject must set out. The question is, in what terms the evidence or ground on which we draw these conclusions may best be designated—whether it is most correct to say that the unknown case is proved by known cases, or that is proved by a general proposition including both sets of cases, the known and the unknown? I contend for the former mode of expression. I hold it an abuse of language to say, that the proof that Socrates is mortal, is that all men are mortal. Turn it in what way we will, this seems to me asserting that a thing is the proof of itself. Whoever pronounces the words, All men are mortal, has affirmed that Socrates is mortal, though he may never have heard of Socrates; for since Socrates, whether known to be a man or not, really is a man, he is included in the words, All men, and in every assertion of which they are the subject. The reviewer acknowledges that the maxim (Dictum de Omni et Nullo) as commonly expressed—'Whatever is true of a class is true of everything included in the class,' is a mere identical proposition, since the class *is* nothing but the things included in it. But he thinks this defect would be cured by wording the maxim thus: 'Whatever is true of a class is true of everything which can be shown to be a member of the class:' as if a thing could be shown to be a member of the class without being one."

The qualified manner in which the maxim is here enunciated by the reviewer (what *can be shown* to be a member of the class) corresponds with the qualification introduced by those critics whom Aristotle impugns (*λύουσι γὰρ οὐ φάσκοντες εἰδέναι πᾶσαν δυάδα ἀρτίαν οὖσαν, ἀλλ' ἢν ἴσασιν ὅτι δυάς*); and the reply of Mr. Mill would have suited for these critics as well as for the reviewer. The puzzle started in the Platonic Menon is, at bottom, founded on the same view as that of Mr. Mill, when he states that the major proposition of the Syllogism includes beforehand

as it is. This is what Demonstration, or Scientific Syllogism, teaches us;[a] a Syllogism derived from premisses true, immediate, prior to, and more knowable than the conclusion—causes of the conclusion, and specially appropriate thereto. These premisses must be known beforehand without being demonstrated (*i.e.* known not through a middle term); and must be known not merely in the sense of understanding the signification of the terms, but also in that of being able to affirm the truth of the proposition. *Prior* or *more knowable* is understood here as prior or more knowable *by nature* (not *relatively to us*, according to the antithesis formerly explained); first, most universal, undemonstrable *principia* are meant. Some of these are Axioms, which the learner must "bring with him from home," or know before the teacher can instruct him in any special science; some are Definitions of the name and its essential meaning; others, again, are Hypotheses or affirmations of the existence of the thing defined, which the learner must accept upon the authority of the teacher.[b] As

the conclusion. "The general principle, (says Mr. Mill, p. 205), instead of being given as evidence of the particular case, cannot itself be taken for true without exception, until every shadow of doubt which could affect any case comprised in it is dispelled by evidence *aliunde*; and then what remains for the syllogism to prove? From a general principle we cannot infer any particulars but those which the principle itself assumes as known."

To enunciate this in the language of the Platonic Menon, we learn nothing by or through the evidence of the Syllogism, except a part of what we have already professed ourselves to know by asserting the major premiss.

[a] Aristot. Analyt. Post. I. ii. p. 71, b. 9-17. Julius Pacius says in a note, ad c. ii. p. 394: "Propositio demonstrativa est prima, immediata, et indemonstrabilis. His tribus verbis significatur una et eadem conditio; nam propositio prima est, quæ, quod medio caret, demonstrari nequit."

So also Zabarella (In lib. I. Post. Anal. Comm., p. 340, Op. ed. Venet. 1617): "Duæ illæ dictiones (*primis* et *immediatis*) unam tantum significant conditionem ordine secundam, non duas; idem namque est, principia esse medio carentia, ac esse prima."

[b] Aristot. Analyt. Post. I. ii. p. 72, a. 1-24; Themistius, Paraphr. I. ii. p. 10, ed. Spengel; Schol. p. 199, b. 44. Themistius quotes the definition of

these are the *principia* of Demonstration, so it is necessary that the learner should know them, not merely as well as the conclusions demonstrated, but even better; and that among matters contradictory to the *principia* there should be none that he knows better or trusts more.[a]

In Aristotle's time two doctrines had been advanced, in opposition to the preceding theory: (1) Some denied the necessity of any indemonstrable *principia*, and affirmed the possibility of demonstrating backwards *ad infinitum*; (2) Others agreed in denying the necessity, of any indemonstrable *principia*, but contended that demonstration in a circle is valid and legitimate—*e.g.* that A may be demonstrated by means of B, and B by means of A. Against both these doctrines Aristotle enters his protest. The first of them—the supposition of an interminable regress—he pronounces to be obviously absurd: the second he declares tantamount to proving a thing by itself; the circular demonstration, besides, having been shown to be impossible, except in the First figure, with propositions in which the predicate reciprocates or is co-extensive with the subject

an Axiom as given by Theophrastus: *Ἀξίωμά ἐστι δόξα τις*, &c. This shows the difficulty of adhering precisely to a scientific terminology. Theophrastus explains an axiom to be a sort of *δόξα*, thus lapsing into the common loose use of the word. Yet still both he and Aristotle declare *δόξα* to be of inferior intellectual worth as compared with *ἐπιστήμη* (Anal. Post. I. xxiii.), while at the same time they declare the Axiom to be the very maximum of scientific truth. Theophrastus gave, as examples of Axioms, the maxim of Contradiction, universally applicable, and, "If equals be taken from equals the remainders will be equal," applicable to homogeneous quantities. Even Aristotle himself sometimes falls into the same vague employment of *δόξα*, as including the Axioms. See Metaphys. B. ii. p. 996, b. 28; Γ. iii. p. 1005, b. 33.

[a] Aristot. Anal. Post. I. ii. p. 72, a. 25, b. 4. I translate these words in conformity with Themistius, pp. 12-13, and with Mr. Poste's translation, p. 43. Julius Pacius and M. Barthélemy St. Hilaire render them somewhat differently. They also read *ἀμετάπτωτος*, while Waitz and Firmin Didot reads *ἀμετάπειστος*, which last seems preferable.

—a very small proportion among propositions generally used in demonstrating.[a]

Demonstrative Science is attained only by syllogizing from necessary premisses, such as cannot possibly be other than they are. The predicate must be (1) *de omni*, (2) *per se*, (3) *quatenus ipsum*, so that it is a *Primum Universale*; this third characteristic not being realized without the preceding two. First, the predicate must belong, and belong at all times, to everything called by the name of the subject. Next, it must belong thereunto *per se*, or essentially; that is, either the predicate must be stated in the definition declaring the essence of the subject, or the subject must be stated in the definition declaring the essence of the predicate. The predicate must not be extra-essential to the subject, nor attached to it as an adjunct from without, simply concomitant or accidental. The like distinction holds in regard to events: some are accidentally concomitant sequences which may or may not be realized (*e.g.*, a flash of lightning occurring when a man is on his journey); in others, the conjunction is necessary or causal (as when an animal dies under the sacrificial knife).[b] Both these two characteristics (*de omni* and *per se*) are presupposed in the third (*quatenus ipsum*);

[a] Aristot. Analyt. Post. I. iii. p. 72, b. 5-p. 73, a. 20: ὅστ' ἐπειδὴ ὀλίγα τοιαῦτα ἐν ταῖς ἀποδείξεσιν, &c.

[b] Aristot. Analyt. Post. I. iv. p. 73, a. 21, b. 16.

Τὰ ἄρα λεγόμενα ἐπὶ τῶν ἁπλῶς ἐπιστητῶν καθ' αὑτὰ οὕτως ὡς ἐνυπάρχειν τοῖς κατηγορουμένοις ἢ ἐνυπάρχεσθαι δι' αὑτά τί ἐστι καὶ ἐξ ἀνάγκης (b. 16, seq.). *Line* must be included in the definition of the opposites *straight* or *curve*. Also it is essential to every line that it is either straight or curve. *Number* must be included in the definition of the opposites *odd* or *even*; and to be either odd or even is essentially predicable of every number. You cannot understand what is meant by *straight* or *curve* unless you have the notion of a *line*.

The example given by Aristotle of *causal* conjunction (the death of an animal under the sacrificial knife) shows that he had in his mind the perfection of Inductive Observation, including full application of the Method of Difference.

but this last implies farther, that the predicate is attached to the subject in the highest universality consistent with truth; *i.e.*, that it is a First Universal, a primary predicate and not a derivative predicate. Thus, the predicate of having its three angles equal to two right angles, is a characteristic not merely *de omni* and *per se*, but also a First Universal, applied to a triangle. It is applied to a triangle, *quatenus* triangle, as a primary predicate. If applied to a subject of higher universality (*e.g.*, to every geometrical figure), it would not be always true. If applied to a subject of lower universality (*e.g.*, to a right-angled triangle or an isosceles triangle), it would be universally true and would be true *per se*, but it would be a derivative predicate and not a First Universal; it would not be applied to the isosceles *quatenus* isosceles, for there is a still higher Universal of which it is predicable, being true respecting any triangle you please. Thus, the properties with which Demonstration, or full and absolute Science, is conversant, are *de omni*, *per se*, and *quatenus ipsum*, or *Universalia Prima*;[a] all of them necessary, such as cannot but be true.

[a] Aristot. Analyt. Post. I. iv. p. 73, b. 25-p. 74, a. 3. *ὁ τοίνυν τὸ τυχὸν πρῶτον δείκνυται δύο ὀρθὰς ἔχον ἢ ὁτιοῦν ἄλλο, τούτῳ πρώτῳ ὑπάρχει καθόλου, καὶ ἡ ἀπόδειξις καθ' αὑτὸ τούτου καθόλου ἐστί, τῶν δ' ἄλλων τρόπον τινὰ οὐ καθ' αὑτό· οὐδὲ τοῦ ἰσοσκελοῦς οὐκ ἔστι καθόλου ἀλλ' ἐπὶ πλέον.*

About the precise signification of *καθόλου* in Aristotle, see a valuable note of Bonitz (ad Metaphys. Z. iii.) p. 299; also Waitz (ad Aristot. De Interpr. c. vii.) I. p. 334. Aristotle gives it here, b. 26: *καθόλου δὲ λέγω ὃ ἂν κατὰ παντός τε ὑπάρχῃ καὶ καθ' αὑτὸ καὶ ᾗ αὐτό.* Compare Themistius, Paraphr. p. 19, Spengel. Τὸ *καθ' αὑτό* is described by Aristotle confusedly. Τὸ *καθόλου*, is that which is predicable of the subject as a whole or *summum genus*: τὸ *κατὰ παντός*, that which is predicable of every individual, either of the *summum genus* or of any inferior species contained therein. Cf. Analyt. Post. I. xxiv. p. 85, b. 24: *ᾧ γὰρ καθ' αὑτὸ ὑπάρχει τι, τοῦτο αὐτὸ αὑτῷ αἴτιον*—the subject is itself the cause or *fundamentum* of the properties *per se*.

Aristotle remarks that there is great liability to error about these *Universalia Prima.* We sometimes demonstrate a predicate to be true, universally and *per se*, of a lower species, without being aware that it might also be demonstrated to be true, universally and *per se*, of the higher genus to which that species belongs; perhaps, indeed, that higher genus may not yet have obtained a current name. That proportions hold by permutation, was demonstrated severally for numbers, lines, solids, and intervals of time; but this belongs to each of them, not from any separate property of each, but from what is common to all: that, however, which is common to all had received no name, so that it was not known that one demonstration might comprise all the four.[a] In like manner, a man may know that an equilateral and an isosceles triangle have their three angles equal to two right angles, and also that a scalene triangle has its three angles equal to two right angles; yet he may not know (except sophistically and by accident[b]) that a triangle *in genere* has its three angles equal to two right angles, though there be no other triangles except equilateral, isosceles, and scalene. He does not know that this may be demon-

See the explanation and references in Kampe, Die Erkenntniss-theorie des Aristoteles, ch. v. pp. 160-165.

[a] Aristot. Analyt. Post. I. v. p. 74, a. 4-23. *ἀλλὰ διὰ τὸ μὴ εἶναι ὠνομασμένον τι πάντα ταῦτα ἕν, ἀριθμοί, μήκη, χρόνος, στερεά, καὶ εἴδει διαφέρειν ἀλλήλων, χωρὶς ἐλαμβάνετο.* What these four have in common is that which he himself expresses by Ποσόν—*Quantum*—in the Categoriæ and elsewhere. (Categor. p. 4, b. 20, seq.; Metaph. Δ. p. 1020, a. 7, seq.)

[b] Aristot. Analyt. Post. I. v. p. 74, a. 27: *οὕπω οἶδε τὸ τρίγωνον ὅτι δύο ὀρθαῖς, εἰ μὴ τὸν σοφιστικὸν τρόπον οὐδὲ καθόλου τρίγωνον, οὐδ' εἰ μηδέν ἐστι παρὰ ταῦτα τρίγωνον ἕτερον.* The phrase *τὸν σοφιστικὸν τρόπον* is equivalent to *τὸν σοφιστικὸν τρόπον τὸν κατὰ συμβεβηκός*, p. 71, b. 10. I see nothing in it connected with Aristotle's characteristic of a Sophist (special professional life purpose—*τοῦ βίου τῇ προαιρέσει*, Metaphys. Γ. p. 1004, b. 24): the phrase means nothing more than *unscientific.*

strated of every triangle *quatenus* triangle. The only way to obtain a certain recognition of *Primum Universale*, is, to abstract successively from the several conditions of a demonstration respecting the concrete and particular, until the proposition ceases to be true. Thus, you have before you a brazen isosceles triangle, the three angles whereof are equal to two right angles. You may eliminate the condition brazen, and the proposition will still remain true. You may also eliminate the condition isosceles; still the proposition is true. But you cannot eliminate the condition triangle, so as to retain only the higher genus, geometrical figure; for the proposition then ceases to be always true. Triangle is in this case the *Primum Universale*.[a]

In every demonstration the *principia* or premisses must be not only true, but necessarily true; the conclusion also will then be necessarily true, by reason of the premisses, and this constitutes Demonstration. Wherever the premisses are necessarily true, the conclusion will be necessarily true; but you cannot say, *vice versâ*, that wherever the conclusion is necessarily true, the syllogistic premisses from which it follows must always be necessarily true. They may be true without being necessarily true, or they may even be false: if, then, the conclusion be necessarily true, it is not so by reason of these premisses; and the syllogistic proof is in this case no demonstration. Your syllogism may have true premisses and may lead to a conclusion which is true by reason of them; but still you have not demonstrated, since neither premisses nor conclusion are *necessarily* true.[b] When an opponent

[a] Aristot. Analyt. Post. I. v. p. 74, a. 32-b. 4.

[b] Ibid. vi. p. 74, b. 5-18. ἐξ ἀληθῶν μὲν γὰρ ἔστι καὶ μὴ ἀποδεικνύντα συλλογίσασθαι, ἐξ ἀναγκαίων δ' οὐκ ἔστιν ἀλλ' ἢ ἀποδεικνύντα·

contests your demonstration, he succeeds if he can disprove the *necessity* of your conclusion; if he can show any single case in which it either is or may be false.[a] It is not enough to proceed upon a premiss which is either probable or simply true: it may be true, yet not appropriate to the case: you must take your departure from the first or highest universal of the genus about which you attempt to demonstrate.[b] Again, unless you can state the *why* of your conclusion; that is to say, unless the middle term, by reason of which the conclusion is necessarily true, be itself necessarily true,—you have not demonstrated it, nor do you know it absolutely. Your middle term not being necessary may vanish, while the conclusion to which it was supposed to lead abides: in truth no conclusion was known through that middle.[c] In the complete demonstrative or scientific syllogism, the major term must be predicable essentially or *per se* of the middle, and the middle term must be predicable essentially or *per se* of the minor; thus alone can you be sure that the conclusion also is *per se* or necessary. The demonstration cannot take effect through a middle term which is merely a Sign; the sign, even though it be a constant concomitant, yet being not, or at least not known to be, *per se*, will not bring out the *why* of the conclusion, nor make the conclusion necessary. Of non-essential concomitants altogether there is no demonstration; wherefore it might seem to be useless to put questions

τοῦτο γὰρ ἤδη ἀποδείξεώς ἐστιν. Compare Analyt. Prior. I. ii. p. 53, b. 7-25.

[a] Aristot. Analyt. Post. I. vi. p. 74, b. 18: σημεῖον δ' ὅτι ἡ ἀπόδειξις ἐξ ἀναγκαίων, ὅτι καὶ τὰς ἐνστάσεις οὕτω φέρομεν πρὸς τοὺς οἰομένους ἀποδεικνύναι, ὅτι οὐκ ἀνάγκη, &c.

[b] Aristot. Analyt. Post. I. vi. p. 74, b. 21-26: δῆλον δ' ἐκ τούτων καὶ ὅτι εὐήθεις οἱ λαμβάνειν οἰόμενοι καλῶς τὰς ἀρχάς, ἐὰν ἔνδοξος ᾖ ἢ πρότασις καὶ ἀληθής, οἷον οἱ σοφισταὶ ὅτι τὸ ἐπίστασθαι τὸ ἐπιστήμην ἔχειν· &c.

[c] Ibid. b. 26-p. 75, a. 17.

about such; yet, though the questions cannot yield necessary premisses for a demonstrative conclusion, they may yield premisses from which a conclusion will necessarily follow.[a]

In every demonstration three things may be distinguished: (1) The demonstrated conclusion, or Attribute essential to a certain genus; (2) The Genus, of which the attributes *per se* are the matter of demonstration; (3) The Axioms, out of which, or through which, the demonstration is obtained. These Axioms may be and are common to several genera: but the demonstration cannot be transferred from one genus to another; both the extremes as well as the middle term must belong to the same genus. An arithmetical demonstration cannot be transferred to magnitudes and their properties, except in so far as magnitudes are numbers, which is partially true of some among them. The demonstrations in arithmetic may indeed be transferred to harmonics, because harmonics is subordinate to arithmetic; and, for the like reason, demonstrations in geometry may be transferred to mechanics and optics. But we cannot introduce into geometry any property of lines, which does not belong to them *quâ* lines; such, for example, as that a straight line is the most beautiful of all lines, or is the contrary of a circular line; for these predicates belong to it, not *quâ* line, but *quâ* member of a different or more extensive genus.[b] There can be

[a] Aristot. Analyt. Post. I. vi. p. 75, a. 8-37.

On the point last mentioned, M. Barthélemy St.Hilaire observes in his note, p. 41:—Dans les questions de dialectique, la conclusion est nécessaire en ce sens, qu'elle suit nécessairement des prémisses; elle n'est pas du tout nécessaire en ce sens, que la chose qu'elle exprime soit nécessaire. Ainsi il faut distinguer la nécessité de la forme et la nécessité de la matière: ou comme disent les scholastiques, *necessitas illationis et necessitas materiæ*. La dialectique se contente de la première, mais la demonstration a essentiellement besoin des deux."

[b] Aristot. Analyt. Post. I. vii. p. 75,

no complete demonstration about perishable things, or about any individual line, except in regard to its attributes as member of the genus line. Where the conclusion is not eternally true, but true at one time and not true at another, this can only be because one of its premisses is not universal or essential. Where both premisses are universal and essential, the conclusion must be eternal or eternally true. As there is no demonstration, so also there can be no definition, of perishable attributes.[a]

For complete demonstration, it is not sufficient that the premisses be true, immediate, and undemonstrable; they must, furthermore, be essential and appropriate to the class in hand. Unless they be such, you cannot be said to know the conclusion *absolutely*; you know it only by accident. You can only know a conclusion when demonstrated from its own appropriate premisses; and you know it best when it is demonstrated from its highest premisses. It is sometimes difficult to determine whether we really know or not; for we fancy that we know, when we demonstrate from true and universal *principia*, without being aware whether they are, or are not, the *principia* appropriate to the

a. 38-b. 20. Mr. Poste, in his translation, here cites (p. 50) a good illustrative passage from Dr. Whewell's Philosophy of the Inductive Sciences, Book II. ii.:—"But, in order that we may make any real advance in the discovery of truth, our ideas must not only be clear; they must also be *appropriate*. Each science has for its basis a different class of ideas; and the steps which constitute the progress of one science can never be made by employing the ideas of another kind of science. No genuine advance could ever be obtained in Mechanics by applying to the subject the ideas of space and time merely; no advance in Chemistry by the use of mere mechanical conceptions; no discovery in Physiology by referring facts to mere chemical and mechanical principles." &c.

[a] Aristot. Analyt. Post. I. viii. p. 75, b. 21-36. Compare Metaphys. Z. p. 1040, a. 1: *δῆλον ὅτι οὐκ ἂν εἴη αὐτῶν (τῶν φθαρτῶν) οὔθ' ὁρισμὸς οὔτ' ἀπόδειξις.* Also Biese, Die Philosophie des Aristoteles, ch. iv. p. 249.

case.[a] But these *principia* must always be assumed without demonstration—the class whose essential constituent properties are in question, the universal Axioms, and the Definition or meaning of the attributes to be demonstrated. If these definitions and axioms are not always formally enunciated, it is because we tacitly presume them to be already known and admitted by the learner.[b] He may indeed always refuse to grant them in express words, but they are such that he cannot help granting them by internal assent in his mind, to which every syllogism must address itself. When you assume a premiss without demonstrating it, though it be really demonstrable, this, if the learner is favourable and willing to grant it, is an assumption or Hypothesis, valid relatively to him alone, but not valid absolutely: if he is reluctant or adverse, it is a Postulate, which you claim whether he is satisfied or not.[c] The Definition by itself is not an hypothesis; for it neither affirms nor denies the existence of anything. The pupil must indeed understand the terms of it; but this alone is not an hypothesis, unless you call the fact that the pupil comes to learn, an hypothesis.[d] The Hypothesis or assumption is contained in the premisses, being that by which the reason of the conclusion comes to be true. Some object that the geometer makes a false hypothesis or assumption, when he declares a given line drawn to be straight, or to be a foot long, though it is neither one

[a] Aristot. Anal. Post. I. ix. p. 75, b. 37-p. 76, a. 30.

[b] Ibid. x. p. 76, a. 31-b. 22.

[c] Ibid. b. 29-34: *ἐὰν μὲν δοκοῦντα λαμβάνῃ τῷ μανθάνοντι, ὑποτίθεται, καὶ ἔστιν οὐχ ἁπλῶς ὑπόθεσις, ἀλλὰ πρὸς ἐκεῖνον μόνον, ἂν δὲ ἡ μηδεμιᾶς ἐνούσης δόξης ἢ καὶ ἐναντίας ἐνούσης λαμβάνῃ τὸ αὐτό, αἰτεῖται. καὶ τούτῳ διαφέρει ὑπόθεσις καὶ αἴτημα*, &c. Themistius, Paraphras. p. 37, Spengel.

[d] Aristot. Analyt. Post. I. x. 76, b. 36: *τοῦτο δ' οὐχ ὑπόθεσις, εἰ μὴ καὶ τὸ ἀκούειν ὑπόθεσίν τις εἶναι φήσει.* For the meaning of *τὸ ἀκούειν*, compare *ὁ ἀκούων*, infra, Analyt. Post. I. xxiv. p. 85, b. 22.

nor the other. But this objection has no pertinence, since the geometer does not derive his conclusions from what is true of the visible lines drawn before his eyes, but from what is true of the lines conceived in his own mind, and signified or illustrated by the visible diagrams.[a]

The process of Demonstration neither requires, nor countenances, the Platonic theory of Ideas—universal substances beyond and apart from particulars. But it does require that we should admit universal predications; that is, one and the same predicate truly applicable in the same sense to many different particulars. Unless this be so, there can be no universal major premiss, nor appropriate middle term, nor valid demonstrative syllogism.[b]

The Maxim or Axiom of Contradiction, in its most general enunciation, is never formally enunciated by any special science; but each of them assumes the Maxim so far as applicable to its own purpose, whenever the *Reductio ad Absurdum* is introduced.[c] It is in this and the other common principles or Axioms that all the sciences find their point of contact and communion; and that Dialectic also comes into communion with all of them, as also the science (First Philosophy) that scrutinizes the validity or demonstrability of the Axioms.[d] The dialectician is not

[a] Aristot. Analyt. Post. I. x. p. 77, a. 1: *ὁ δὲ γεωμέτρης οὐδὲν συμπεραίνεται τῷ τήνδε εἶναι τὴν γραμμὴν ἣν αὐτὸς ἔφθεγκται, ἀλλὰ τὰ διὰ τούτων δηλούμενα.*

Themistius, Paraphr. p. 37: *ὥσπερ οὐδ' οἱ γεωμέτραι κέχρηνται ταῖς γραμμαῖς ὑπὲρ ὧν διαλέγονται καὶ δεικνύουσιν, ἀλλ' ἃς ἔχουσιν ἐν τῇ ψυχῇ, ὧν εἰσὶ σύμβολα αἱ γραφόμεναι.*

A similar doctrine is asserted, Analyt. Prior. I. xli. p. 49, b. 35, and still more clearly in De Memoria et Reminiscentia. p. 450, a. 2-12.

[b] Aristot. Analyt. Post. I. xi. p. 77, a. 5-9.

[c] Ibid. a. 10, seq.

[d] Aristot. Anal. Post. I. xi. p. 77, a. 26-30: *καὶ εἴ τις καθόλου πειρῷτο δεικνύναι τὰ κοινά, οἷον ὅτι ἅπαν φάναι*

confined to any one science, or to any definite subject-matter. His liberty of interrogation is unlimited; but his procedure is essentially interrogatory, and he is bound to accept the answer of the respondent—whatever it be, affirmative or negative—as premiss for any syllogism that he may construct. In this way he can never be sure of demonstrating any thing; for the affirmative and the negative will not be equally serviceable for that purpose. There is indeed also, in discussions on the separate sciences, a legitimate practice of scientific interrogation. Here the questions proper to be put are limited in number, and the answers proper to be made are determined beforehand by the truths of the science—say Geometry; still, an answer thus correctly made will serve to the interrogator as premiss for syllogistic demonstration.[a] The respondent must submit to have such answer tested by appeal to geometrical *principia* and to other geometrical propositions already proved as legitimate conclusions from the *principia*; if he finds himself involved in contradictions, he is confuted *quâ* geometer, and must correct or modify his answer. But he is not bound, *quâ* geometer, to undergo scrutiny as to the geometrical *principia* themselves; this would carry the dialogue out of the province of Geometry into that of First Philosophy and Dialectic. Care, indeed, must be taken

ἢ ἀποφάναι, ἢ ὅτι ἴσα ἀπὸ ἴσων, ἢ τῶν τοιούτων ἅπτα. Compare Metaph. K. p. 1061. b. 18.

[a] Aristot. Analyt. Post. I. xii. p. 77, a. 36-40; Themistius, p. 40.

The text is here very obscure. He proceeds to distinguish Geometry especially (also other sciences, though less emphatically) from *τὰ ἐν τοῖς διαλόγοις* (I. xii. p. 78, a. 12).

Julius Pacius, ad Analyt. Post. I. viii. (he divides the chapters differently), p. 417, says:—"Differentia interrogationis dialecticæ et demonstrativæ hæc est. Dialecticus ita interrogat, ut optionem det adversario, utrum malit affirmare an negare. Demonstrator vero interrogat ut rem evidentiorem faciat; id est, ut doceat ex principiis auditori notis."

to keep both questions and answers within the limits of the science. Now there can be no security for this restriction, except in the scientific competence of the auditors. Refrain, accordingly, from all geometrical discussions among men ignorant of geometry and confine yourself to geometrical auditors, who alone can distinguish what questions and answers are really appropriate. And what is here said about geometry, is equally true about the other special sciences.[a] Answers may be improper either as foreign to the science under debate, or as appertaining to the science, yet false as to the matter, or as equivocal in middle term; though this last is less likely to occur in Geometry, since the demonstrations are accompanied by diagrams, which help to render conspicuous any such ambiguity.[b] To an inductive proposition, bringing forward a single case as contributory to an ultimate generalization, no general objection should be offered; the objection should be reserved until the generalization itself is tendered.[c] Sometimes the mistake is made of drawing an

[a] Aristot. Analyt. Post. I. xii. p. 77, b. 1-15; Themistius, p. 41: *οὐ γὰρ ὥσπερ τῶν ἐνδόξων οἱ πολλοὶ κριταί, οὕτω καὶ τῶν κατ' ἐπιστήμην οἱ ἀνεπιστήμονες.*

[b] Analyt. Post. I. xii. p. 77, b. 16-33. Propositions within the limits of the science, but false as to matter, are styled by Aristotle *ψευδογραφήματα*. See Aristot. Sophist. Elench. xi. p. 171, b. 14; p. 172, a. 1.

[c] "L'interrogation syllogistique se confondant avec la proposition, il s'ensuit que l'interrogation doit être, comme la proposition, propre à la science dont il s'agit" (Barthélemy St. Hilaire, note, p. 70). Interrogation here has a different meaning from that which it bears in Dialectic.

[d] Analyt. Post. I. xii. p. 77, b. 34 seq. This passage is to me hardly intelligible. It is differently understood by commentators and translators. John Philoponus in the Scholia (p. 217, b. 17-32, Brandis), cites the explanation of it given by Ammonius, but rejects that explanation, and waits for others to supply him with a better. Zabarella (Comm. in Analyt. Post. pp. 426, 456, ed. Venet. 1617) admits that as it stands, and where it stands, it is unintelligible, but transposes it to another part of the book (to the end of cap. xvii., immediately before the words *φανερὸν δὲ καὶ ὅτι*, &c., of c. xviii.), and gives an explanation of it in this altered position. But I do not think he has succeeded in clearing it up.

affirmative conclusion from premisses in the Second figure; this is formally wrong, but the conclusion may in some cases be true, if the major premiss happens to be a reciprocating proposition, having its predicate co-extensive with its subject. This, however, cannot be presumed; nor can a conclusion be made to yield up its principles by necessary reciprocation; for we have already observed that, though the truth of the premisses certifies the truth of the conclusion, we cannot say *vice versâ* that the truth of the conclusion certifies the truth of the premisses. Yet propositions are more frequently found to reciprocate in scientific discussion than in Dialectic; because, in the former, we take no account of accidental properties, but only of definitions and what follows from them.[a]

Knowledge of Fact and knowledge of the Cause must be distinguished, and even within the same science.[b] In some syllogisms the conclusion only brings out τὸ ὅτι—the reality of certain facts; in others, it ends in τὸ διότι—the affirmation of a cause, or of the *Why*. The syllogism of the *Why* is, where the middle term is not merely the cause, but the proximate cause, of the conclusion. Often however the effect is more notorious, so that we employ it as middle term, and conclude from it to its reciprocating cause; in which case our syllogism is only of the ὅτι; and so it is also when we employ as middle term a cause not proximate but remote, concluding from that to the effect.[c] Some-

[a] Analyt. Post. I. xii. p. 77, b. 40-p. 78, a. 13.

[b] Analyt. Post. I. xiii. p. 77, a. 22 seq.

[c] Themistius, p. 45: πολλάκις συμβαίνει καὶ ἀντιστρέφειν ἀλλήλοις τὸ αἴτιον καὶ τὸ σημεῖον καὶ ἄμφω δείκνυσθαι δι' ἀλλήλων, διὰ τοῦ σημείου μὲν ὡς τὸ ὅτι, διὰ θατέρου δὲ ὡς τὸ διότι.

"Cum enim vera demonstratio, id est τοῦ διότι, fiat per causam proximam, consequens est, ut demonstratio vel per effectum proximum, vel per causam remotam, sit demonstratio τοῦ ὅτι" (Julius Pacius, Comm. p. 422).

times the syllogisms of the ὅτι may fall under one science, those of the διότι under another, namely, in the case where one science is subordinate to another, as optics to geometry, and harmonics to arithmetic; the facts of optics and harmonics belonging to sense and observation, the causes thereof to mathematical reasoning. It may happen, then, that a man knows τὸ διότι well, but is comparatively ignorant τοῦ ὅτι: the geometer may have paid little attention to optical facts.[a] Cognition of the διότι is the maximum, the perfection, of all cognition; and this, comprising arithmetical and geometrical theorems, is almost always attained by syllogisms in the First figure. This figure is the most truly scientific of the three; the other two figures depend upon it for expansion and condensation. It is, besides, the only one in which universal affirmative conclusions can be obtained; for in the Second figure we get only negative conclusions; in the Third, only particular. Accordingly, propositions declaring Essence or Definition, obtained only through universal affirmative conclusions, are yielded in none but the First figure.[b]

As there are some affirmative propositions that are indivisible, *i.e.* having affirmative predicates which belong to a subject at once, directly, immediately, indivisibly,—so there are also some indivisible negative propositions, *i.e.*, with predicates that belong negatively to a subject at once, directly, &c. In all such there

M. Barthélemy St. Hilaire observes (Note, p. 82):—"La cause éloignée non immédiate, donne un syllogisme dans la seconde figure.—Il est vrai qu' Aristote n'appelle cause que la cause immédiate; et que la cause éloignée n'est pas pour lui une véritable cause."

See in Schol. p. 188, a. 19, the explanation given by Alexander of the syllogism τοῦ διότι.

[a] Analyt. Post. I. xiii. p. 79, a. 2, seq.: *ἐνταῦθα γὰρ τὸ μὲν ὅτι τῶν αἰσθητικῶν εἰδέναι, τὸ δὲ διότι τῶν μαθηματικῶν*, &c. Compare Analyt. Prior. II. xxi. p. 67, a. 11; and Metaphys. A. p. 981, a. 15.

[b] Analyt. Post. I. xiv. p. 79, a. 17-32.

is no intermediate step to justify either the affirmation of the predicate, or the negation of the predicate, respecting the given subject. This will be the case where neither the predicate nor the subject is contained in any higher genus.[a]

In regard both to these propositions immediate and indivisible, and to propositions mediate and deducible, there are two varieties of error.[b] You may err simply, from ignorance, not knowing better, and not supposing yourself to know at all; or your error may be a false conclusion, deduced by syllogism through a middle term, and accompanied by a belief on your part that you do know. This may happen in different ways. Suppose the negative proposition, No B is A, to be true immediately or indivisibly. Then, if you conclude the contrary of this[c] (All B is A) to be true, by syllogism

[a] Analyt. Post. I. xv. p. 79, a. 33-b. 22. The point which Aristotle here especially insists upon is, that there may be and are immediate, undemonstrable, *negative* (as well as affirmative) predicates: *φανερὸν οὖν ὅτι ἐνδέχεταί τε ἄλλο ἄλλῳ μὴ ὑπάρχειν ἀπόμως.* (Themistius, Paraphr. p. 48, Spengel: *ἄμεσοι δὲ προτάσεις οὐ καταφάσεις μόνον εἰσίν, ἀλλὰ καὶ ἀποφάσεις ὁμοίως αἱ μὴ δύνανται διὰ συλλογισμοῦ δειχθῆναι, αὗται δ' εἰσὶν ἐφ' ὧν οὐδετέρου τῶν ὅρων ἄλλος τις ὅλου κατηγορεῖται.*) It had been already shown, in an earlier chapter of this treatise (p. 72, b. 19), that there were *affirmative* predicates immediate and undemonstrable. This may be compared with that which Plato declares in the Sophistes (pp. 253-254, seq.) about the intercommunion *τῶν γενῶν καὶ τῶν εἰδῶν* with each other. Some of them admit such intercommunion, others repudiate it.

[b] Analyt. Post. I. xvi. p. 79, b. 23: *ἄγνοια κατ' ἀπόφασιν—ἄγνοια κατὰ διάθεσιν.* See Themistius, p. 49, Spengel. In regard to simple and uncombined ideas, ignorance is not possible as an erroneous combination, but only as a mental blank. You either have the idea and thus know so much truth, or you have not the idea and are thus ignorant to that extent; this is the only alternative. Cf. Aristot. Metaph. Θ. p. 1051, a. 34; De Animâ, III. vi. p. 430, a. 26.

[c] Analyt. Post. I. xvi. p. 79, b. 29. M. Barthélemy St. Hilaire remarks (p. 95, n.):—"Il faut remarquer qu' Aristote ne s'occupe que des modes universels dans la première et dans la seconde figure, parceque, la démonstration étant toujours universelle, les propositions qui expriment l'erreur opposée doivent l'être comme elle. Ainsi ce sont les propositions contraires, et non les contradictoires, dont il sera question ici."

For the like reason the Third figure

through the middle term C, your syllogism must be in the First figure; it must have the minor premiss false (since B is brought under C, when it is not contained in any higher genus), and it may have both premisses false. Again, suppose the affirmative proposition, All B is A, to be true immediately or indivisibly. Then if you conclude the contrary of this (No B is A) to be true, by syllogism through the middle term C, your syllogism may be in the First figure, but it may also be in the Second figure, your false conclusion being negative. If it be in the First figure, both its premisses may be false, or one of them only may be false, either indifferently.[a] If it be in the Second figure, either premiss singly may be wholly false, or both may be partly false.[b]

Let us next assume the affirmative proposition, All B is A, to be true, but mediate and deducible through the middle term C. If you conclude the contrary of this (No B is A) through the same middle term C, in the First figure, your error cannot arise from falsity in the minor premiss, because your minor (by the laws of the figure) must be affirmative; your error must arise from a false major, because a negative major is not inconsistent with the laws of the First figure. On the other hand, if you conclude the contrary in the First figure through a different middle term, D, either both your premisses will be false, or your minor premiss will be false.[c] If you employ the Second figure to conclude your contrary, both your premisses cannot be false, though either one of them singly may be false.[d]

is not mentioned here, but only the First and Second; because in the Third figure no universal conclusion can be proved (Julius Pacius, p. 431).

[a] Analyt. Post. I. xvi. p. 80, a. 6-26.

[b] Ibid. a. 27-b. 14: *ἐν δὲ τῷ μέσῳ σχήματι ὅλας μὲν εἶναι τὰς προτάσεις ἀμφοτέρας ψευδεῖς οὐκ ἐνδέχεται—ἐπί τι δ' ἑκατέραν οὐδὲν κωλύει ψευδῆ εἶναι.*

[c] Ibid. b. 17-p. 81, a. 4.

[d] Ibid. p. 81, a. 5-14.

Such will be the case when the deducible proposition assumed to be true is affirmative, and when therefore the contrary conclusion which you profess to have proved is negative. But if the deducible proposition assumed to be true is negative, and if consequently the contrary conclusion must be affirmative,—then, if you try to prove this contrary through the same middle term, your premisses cannot both be false, but your major premiss must always be false.[a] If, however, you try to prove the contrary through a different and inappropriate middle term, you cannot convert the minor premiss to its contrary (because the minor premiss must continue affirmative, in order that you may arrive at any conclusion at all), but the major can be so converted. Should the major premiss thus converted be true, the minor will be false; should the major premiss thus converted be false, the minor may be either true or false. Either one of the premisses, or both the premisses, may thus be false.[b]

Errors of simple ignorance (not concluded from false syllogism) may proceed from defect or failure of sensible perception, in one or other of its branches. For without sensation there can be no induction; and it is from induction only that the premisses for demonstration by syllogism are obtained. We cannot arrive at universal propositions, even in what are called abstract sciences, except through induction of particulars; nor can we demonstrate except from universals. Induction and Demonstration are the only two ways of learning; and the particulars composing our inductions can only be known through sense.[c]

[a] Analyt. Post. I. xvii. p. 81, a. 15-20.

[b] Ibid. a. 20-34. Mr. Poste's translation (pp. 65-70) is very perspicuous and instructive in regard to these two difficult chapters.

[c] Analyt. Post. I. xviii. p. 81, a. 38-b. 9. In this important chapter (the doctrines of which are more fully ex-

Aristotle next proceeds to show (what in previous passages he had assumed)[a] that, if Demonstration or the syllogistic process be possible—if there be any truths supposed demonstrable, this implies that there must be primary or ultimate truths. It has been explained that the constituent elements assumed in the Syllogism are three terms and two propositions or premisses; in the major premiss, A is affirmed (or denied) of all B; in the minor, B is affirmed of all C; in the conclusion, A is affirmed (or denied) of all C.[b] Now it is possible that there may be some one or more predicates higher than A, but it is impossible that there can be an infinite series of such higher predicates. So also there may be one or more subjects lower than C, and of which C will be the predicate; but it is impossible that there can be an infinite series of such lower subjects. In like manner there may perhaps be one or more middle terms between A and B, and between B and C; but it is impossible that there can be an infinite series of such intervening middle terms. There must be a limit to the series ascending, descending, or intervening.[c] These remarks have no application to reciprocating propositions, in which the predicate is

panded in the last chapter of the Second Book of the Analyt. Post.), the text of Waitz does not fully agree with that of Julius Pacius. In Firmin Didot's edition the text is the same as in Waitz; but his Latin translation remains adapted to that of Julius Pacius. Waitz gives the substance of the chapter as follows (ad Organ. II. p. 347):—"Universales propositiones omnes inductione comparantur, quum etiam in iis, quæ a sensibus maxime aliena videntur et quæ, ut mathematica (*τὰ ἐξ ἀφαιρίσεως*), cogitatione separantur à materia quacum conjuncta sunt, inductione probentur ea quæ de genere (e. g., de linea vel de corpore mathematico), ad quod demonstratio pertineat, prædicentur *καθ' αὑτά* et cum ejus natura conjuncta sint. Inductio autem iis nititur quæ sensibus percipiuntur; nam res singulares sentiuntur, scientia vero rerum singularium non datur sine inductione, non datur inductio sine sensu."

[a] Analyt. Prior. I. xxvii. p. 43, a. 38; Analyt. Post. I. ii. p. 71, b. 21.

[b] Analyt. Post. I. xix. p. 81, b. 10-17.

[c] Ibid. p. 81, b. 30-p. 82 a. 14.

co-extensive with the subject.[a] But they apply alike to demonstrations negative and affirmative, and alike to all the three figures of Syllogism.[b]

In Dialectical Syllogism it is enough if the premisses be admitted or reputed as propositions immediately true, whether they are so in reality or not; but in Scientific or Demonstrative Syllogism they must be so in reality: the demonstration is not complete unless it can be traced up to premisses that are thus immediately or directly true (without any intervening middle term).[c] That there are and must be such primary or immediate premisses, Aristotle now undertakes to prove, by some dialectical reasons, and other analytical or scientific reasons.[d] He himself thus distinguishes them; but the distinction is faintly marked, and amounts, at most, to this, that the analytical reasons advert only to essential predication, and to the conditions of scientific demonstration, while the dialectical reasons dwell upon

[a] Analyt. Post. I. xix. p. 82, a. 15-20. M. Barthélemy St. Hilaire, p. 117:—"Ceci ne saurait s'appliquer aux termes réciproques, parce que dans les termes qui peuvent être attribués réciproquement l'un à l'autre, on ne peut pas dire qu'il y ait ni premier ni dernier rélativement à l'attribution."

[b] Analyt. Post. I. xx., xxi. p. 82, a. 21-b. 36.

[c] Ibid. xix. p. 81, b. 18-29.

[d] Ibid. xxi. p. 82, b. 35; xxii. p. 84, a. 7: *λογικῶς μὲν οὖν ἐκ τούτων ἄν τις πιστεύσειε περὶ τοῦ λεχθέντος, ἀναλυτικῶς δὲ διὰ τῶνδε φανερὸν συντομώτερον.* In Scholia, p. 227, a. 42, the same distinction is expressed by Philoponus in the terms *λογικώτερα* and *πραγματωδέστερα*. Compare Biese, Die Philosophie des Aristoteles, pp. 134, 261; Rassow, De Notionis Definitione, pp. 19, 20; Heyder, Aristot. u. Hegel. Dialektik, pp. 316, 317.

Aristotle, however, does not always adhere closely to the distinction. Thus, if we compare the *logical* or *dialectical* reasons given, p. 82, b. 37, seq., with the *analytical*, announced as beginning p. 84, a. 8, seq., we find the same main topic dwelt upon in both, namely, that to admit an infinite series excludes the possibility of Definition. Both Alexander and Ammonius agree in announcing this as the capital topic on which the proof turned; but Alexander inferred from hence that the argument was purely *dialectical* (*λογικὸν ἐπιχείρημα*), while Ammonius regarded it as a reason thoroughly convincing and evident: *ὁ μέντοι φιλόσοφος* (Ammonius) *ἔλεγε μὴ διὰ τοῦτο λέγειν λογικὰ τὰ ἐπιχειρήματα· ἐναργὲς γὰρ ὅτι εἰσὶν ὁρισμοί, εἰ μὴ ἀκαταληψίαν εἰσαγάγωμεν* (Schol. p. 227, a. 40, seq., Brand.).

these, but include something else besides, viz., accidental predication. The proof consists mainly in the declaration that, unless we assume some propositions to be true immediately, indivisibly, undemonstrably,—Definition, Demonstration, and Science would be alike impossible. If the ascending series of predicates is endless, so that we never arrive at a highest generic predicate; if the descending series of subjects is endless, so that we never reach a lowest subject,—no definition can ever be attained. The essential properties, included in the definition, must be finite in number; and the accidental predicates must also be finite in number, since they have no existence except as attached to some essential subject, and since they must come under one or other of the nine later Categories.[a] If, then, the two extremes are thus fixed and finite—the highest predicate and the lowest subject—it is impossible that there can be an infinite series of terms between the two. The intervening terms must be finite in number. The Aristotelian theory therefore is, that there are certain propositions directly and immediately true, and others derived from them by demonstration through middle terms.[b] It is alike an error to assert that every thing can be demonstrated, and that nothing can be demonstrated.

[a] Analyt. Post. I. xxii. p. 83, a. 20, b. 14. Only eight of the ten Categories are here enumerated.

[b] Analyt. Post. I. xxii. p. 84, a. 30-35. The paraphrase of Themistius (pp. 55-58, Spengel) states the Aristotelian reasoning in clearer language than Aristotle himself. Zabarella (Comm. in Analyt. Post. I. xviii.; context. 148, 150, 154) repeats that Aristotle's proof is founded upon the undeniable fact that there *are* definitions, and that without them there could be no demonstration and no science. This excludes the supposition of an infinite series of predicates and of middle terms:—"Sumit rationem à definitione; si in *predicatis in quid* procederetur ad infinitum, sequeretur auferri definitionem et omnino essentiæ cognitionem; sed hoc dicendum non est, quum omnium consensioni adversetur" (p. 466, Ven. 1617).

It is plain from Aristotle's own words[a] that he intended these four chapters (xix.-xxii.) as a confirmation of what he had already asserted in chapter iii. of the present treatise, and as farther refutation of the two distinct classes of opponents there indicated: (1) those who said that every thing was demonstrable, demonstration in a circle being admissible; (2) those who said that nothing was demonstrable, inasmuch as the train of predication upwards, downwards, and intermediate, was infinite. Both these two classes of opponents agreed in saying, that there were no truths immediate and indemonstrable; and it is upon this point that Aristotle here takes issue with them, seeking to prove that there are and must be such truths. But I cannot think the proof satisfactory; nor has it appeared so to able commentators either of ancient or modern times—from Alexander of Aphrodisias down to Mr. Poste.[b] The

[a] Analyt. Post. I. xxii. p. 84, a. 32: *ὅπερ ἴφαμέν τινας λέγειν κατ' ἀρχάς*, &c.

[b] See Mr. Poste's note, p. 77, of his translation of this treatise. After saying that the first of Aristotle's *dialectical* proofs is faulty, and that the second is a *petitio principii*, Mr. Poste adds, respecting the so-called *analytical* proof given by Aristotle:—"It is not so much a proof, as a more accurate determination of the principle to be postulated. This postulate, the existence of first principles, as concerning the constitution of the world, appears to belong properly to Metaphysics, and is merely borrowed by Logic. See Metaph. ii. 2, and Introduction." In the passage of the Metaphysica (α. p. 994) here cited the main argument of Aristotle is open to the same objection of *petitio principii* which Mr. Poste urges against Aristotle's second *dialectical* argument in this place.

Mr. John Stuart Mill, in his System of Logic, takes for granted that there *must* be immediate, indemonstrable truths, to serve as a basis for deduction; "that there cannot be a chain of proof suspended from nothing;" that there must be ultimate laws of nature, though we cannot be sure that the laws now known to us are ultimate.

On the other hand, we read in the recent work of an acute contemporary philosopher, Professor Delbœuf (Essai de Logique Scientifique, Liège, 1865, Pref. pp. v, vii, viii, pp. 46, 47:)—"Il est des points sur lesquels je crains de ne m'être pas expliqué assez nettement, entre autres la question du fondement de la certitude. Je suis de ceux qui repoussent de toutes leurs forces l'axiome si

elaborate amplification added in these last chapters adds no force to the statement already given at the earlier stage; and it is in one respect a change for the worse, inasmuch as it does not advert to the important distinction announced in chapter iii., between universal truths known by Induction (from sense and particulars),

spécieux qu'on ne peut tout démontrer; cette proposition aurait, à mes yeux, plus besoin que toute autre d'une démonstration. Cette démonstration ne sera en partie donnée que quand on aura une bonne fois énuméré toutes les propositions indémontrables; et quand on aura bien défini le caractère auquel on les reconnait. Nulle part on ne trouve ni une semblable énumération, ni une semblable définition. On reste à cet égard dans une position vague, et par cela même facile à défendre."

It would seem, by these words, that M. Delbœuf stands in the most direct opposition to Aristotle, who teaches us that the ἀρχαὶ or *principia* from which demonstration starts cannot be themselves demonstrated. But when we compare other passages of M. Delbœuf's work, we find that, in rejecting all undemonstrable propositions, what he really means is to reject all *self-evident universal truths*. "C'est donc une véritable illusion d'admettre des vérités évidentes par elles-mêmes. Il n'y a pas de proposition fausse que nous ne soyons disposés d'admettre comme axiome, quand rien ne nous a encore autorisés à la repousser" (p. ix.). This is quite true in my opinion; but the immediate indemonstrable truths for which Aristotle contends as ἀρχαὶ of demonstration, are not announced by him as *self-evident*, they are declared to be results of sense and induction, to be raised from observation of particulars multiplied, compared, and permanently formularized under the intellectual *habitus* called Noûs. By Demonstration Aristotle means deduction in its most perfect form, beginning from these ἀρχαὶ which are inductively known but not demonstrable (*i. e.* not knowable deductively). And in this view the very able and instructive treatise of M. Delbœuf mainly coincides, assigning even greater preponderance to the inductive process, and approximating in this respect to the important improvements in logical theory advanced by Mr. John Stuart Mill.

Among the universal propositions which are not derived from Induction, but which serve as ἀρχαὶ for Deduction and Demonstration, we may reckon the religious, ethical, æsthetical, social, political, &c., beliefs received in each different community, and impressed upon all newcomers born into it by the force of precept, example, authority. Here the major premiss is felt by each individual as carrying an authority of its own, stamped and enforced by the sanction of society, and by the disgrace or other penalties in store for those who disobey it. It is ready to be interpreted and diversified by suitable minor premisses in all inferential applications. But these ἀρχαὶ for deduction, differing widely at different times and places, though generated in the same manner and enforced by the same sanction, would belong more properly to the class which Aristotle terms τὰ ἔνδοξα.

and universal truths known by Deduction from these. The truths immediate and indemonstrable (not known through a middle term) are the inductive truths, as Aristotle declares in many places, and most emphatically at the close of the Analytica Posteriora. But in these chapters, he hardly alludes to Induction. Moreover, while trying to prove that there must be immediate universal truths, he neither gives any complete list of them, nor assigns any positive characteristic whereby to identify them. Opponents might ask him whether these immediate universal truths were not ready-made inspirations of the mind; and if so, what better authority they had than the Platonic Ideas, which are contemptuously dismissed.

We have thus recognized that there exist immediate (ultimate or primary) propositions, wherein the conjunction between predicate and subject is such that no intermediate term can be assigned between them. When A is predicated both of B and C, this may perhaps be in consequence of some common property possessed by B and C, and such common property will form a middle term. For example, equality of angles to two right angles belongs both to an isosceles and to a scalene triangle, and it belongs to them by reason of their common property—triangular figure; which last is thus the middle term. But this need not be always the case.* It is possible that the two propositions—A predicated of B, A predicated of C—may both of them be immediate propositions; and that there may be no community of nature between B and C. Whenever a middle term can be found, demonstration is possible; but where no middle term can be found, demonstration is impossible. The proposition, whether affirmative or

* Analyt. Post. I. xxiii. p. 84, b. 3-18. τοῦτο δ' οὐκ ἀεὶ οὕτως ἔχει.

negative, is then an immediate or indivisible one. Such propositions, and the terms of which they are composed, are the ultimate elements or *principia* of Demonstration. Predicate and subject are brought constantly into closer and closer conjunction, until at last they become one and indivisible.[a] Here we reach the unit or element of the syllogizing process. In all scientific calculations there is assumed an unit to start from, though in each branch of science it is a different unit; *e.g.* in barology, the pound-weight; in harmonics, the quarter-tone; in other branches of science, other units.[b] Analytical research teaches us that the corresponding unit in Syllogism is the affirmative or negative proposition which is primary, immediate, indivisible. In Demonstration and Science it is the Noûs or Intellect.[c]

Having thus, in the long preceding reasoning, sought to prove that all demonstration must take its departure from primary undemonstrable *principia*—from some premisses, affirmative and negative, which are directly true in themselves, and not demonstrable through any middle term or intervening propositions, Aristotle now passes to a different enquiry. We have some demonstrations in which the conclusion is Particular, others in which it is Universal: again, some Affirmative, some Negative. Which of the two, in each of these alternatives, is the best? We have also demonstrations Direct or Ostensive, and demonstrations Indirect or by way of *Reductio ad Absurdum*. Which of these two is the

[a] Analyt. Post. I. xxiii. p. 84, b. 25-37. *ἀεὶ τὸ μέσον πυκνοῦται, ἕως ἀδιαίρετα γένηται καὶ ἕν. ἔστι δ' ἕν, ὅταν ἄμεσον γένηται καὶ μία πρότασις ἁπλῶς ἡ ἄμεσος.*

[b] Ibid. b. 37: *καὶ ὥσπερ ἐν τοῖς ἄλλοις ἡ ἀρχὴ ἁπλοῦν, τοῦτο δ' οὐ ταὐτὸ πανταχοῦ, ἀλλ' ἐν βαρεῖ μὲν μνᾶ, ἐν δὲ μέλει δίεσις, ἄλλο δ' ἐν ἄλλῳ, οὕτως ἐν συλλογισμῷ τὸ ἐν πρότασις ἄμεσος, ἐν δ' ἀποδείξει καὶ ἐπιστήμῃ ὁ νοῦς.*

[c] Ibid. b. 35-p. 85, a. 1.

best? Both questions appear to have been subjected to debate by contemporary philosophers.[a]

Aristotle discusses these points dialectically (as indeed he points out in the Topica that the comparison of two things generally, as to better and worse, falls under the varieties of dialectical enquiry[b]), first stating and next refuting the arguments on the weaker side. Some persons may think (he says) that demonstration of the Particular is better than demonstration of the Universal: first, because it conducts to fuller cognition of that which the thing is in itself, and not merely that which it is *quatenus* member of a class; secondly, because demonstrations of the Universal are apt to generate an illusory belief, that the Universal is a distinct reality apart from and independent of all its particulars (*i.e.*, that figure in general has a real existence apart from all particular figures, and number in general apart from all particular numbers, &c.), while demonstrations of the Particular do not lead to any such illusion.[c]

To these arguments Aristotle replies:—1. It is not correct to say that cognition of the Particular is more complete, or bears more upon real existence, than cognition of the Universal. The reverse would be nearer to the truth. To know that the isosceles, *quatenus* triangle, has its three angles equal to two right angles, is more complete cognition than knowing simply that the isosceles has its three angles equal to two right angles. 2. If the Universal be not an equivocal

[a] Analyt. Post. I. xxiv. p. 85, a. 13-18. *ἀμφισβητεῖται ποτέρα βελτίων· ὡς δ' αὕτως καὶ περὶ τῆς ἀποδεικνύναι λεγομένης καὶ τῆς εἰς τὸ ἀδύνατον ἀγούσης ἀποδείξεως.*

[b] Aristot. Topic. III. i. p. 116, a. 1, seq.

[c] Analyt. Post. I. xxiv. p. 85, a. 20-b. 3. Themistius, pp. 58-59, Spengel: *οὐ γὰρ ὁμώνυμον τὸ καθόλου ἐστίν, οὐδὲ φωνὴ μόνον, ἀλλ' ὑπόστασις, οὐ χωριστὴ μὲν ὥσπερ οὐδὲ τὰ συμβεβηκότα, ἐναργῶς δ' οὖν ἐμφαινομένη τοῖς πράγμασιν.* The Scholastic doctrine of *Universalia in re* is here expressed very clearly by Themistius.

term—if it represents one property and one definition common to many particulars, it then has a real existence as much or more than any one or any number of the particulars. For all these particulars are perishable, but the class is imperishable. 3. He who believes that the universal term has one meaning in all the particulars, need not necessarily believe that it has any meaning *apart* from all particulars; he need not believe this about Quiddity, any more than he believes it about Quality or Quantity. Or if he does believe so, it is his own individual mistake, not imputable to the demonstration. 4. We have shown that a complete demonstration is one in which the middle term is the cause or reason of the conclusion. Now the Universal is most of the nature of Cause; for it represents the First Essence or the *Per Se*, and is therefore its own cause, or has no other cause behind it. The demonstration of the Universal has thus more of the Cause or the *Why*, and is therefore better than the demonstration of the Particular. 5. In the Final Cause or End of action, there is always some ultimate end for the sake of which the intermediate ends are pursued, and which, as it is better than they, yields, when it is known, the only complete explanation of the action. So it is also with the Formal Cause: there is one highest form which contains the *Why* of the subordinate forms, and the knowledge of which is therefore better; as when, for example, the exterior angles of a given isosceles triangle are seen to be equal to four right angles, not because it is isosceles or triangle, but because it is a rectilineal figure. 6. Particulars, as such, fall into infinity of number, and are thus unknowable; the Universal tends towards oneness and simplicity, and is thus essentially knowable, more fully demonstrable than the infinity of particulars. The demonstration thereof is therefore better. 7. It is

also better, on another ground; for he that knows the Universal does in a certain sense know also the Particular;[a] but he that knows the Particular cannot be said in any sense to know the Universal. 8. The *principium* or perfection of cognition is to be found in the immediate proposition, true *per se*. When we demonstrate, and thus employ a middle term, the nearer the middle term approaches to that *principium*, the better the demonstration is. The demonstration of the Universal is thus better and more accurate than that of the Particular.[b]

Such are the several reasons enumerated by Aristotle in refutation of the previous opinion stated in favour of the Particular. Evidently he does not account them all of equal value: he intimates that some are purely dialectical (λογικά); and he insists most upon the two following:—1. He that knows the Universal knows in a certain sense the Particular; if he knows that every triangle has its three angles equal to two right angles, he knows potentially that the isosceles has its three angles equal to the same, though he may not know as yet that the isosceles *is* a triangle. But he that knows the Particular does not in any way know the Universal, either actually or potentially.[c] 2. The Universal is apprehended by Intellect or Noûs, the highest of all cognitive powers; the Particular terminates in sensation. Here, I presume, he means, that, in demonstration of the Particular, the conclusion teaches you nothing more than

[a] Compare Analyt. Post. I. i. p. 71, a. 25; also Metaphys. A. p. 981, a. 12.

[b] Analyt. Post. I. xxiv. p. 85, b. 4-p. 86, a. 21. Schol. p. 233, b. 6: *ὁμοίως δὲ ὄντων γνωρίμων, ἡ δι' ἐλαττόνων μέσων αἱρετωτέρα· μᾶλλον γὰρ ἐγγυτέρω τῆς τοῦ νοῦ ἐνεργείας.*

[c] Analyt. Post. I. xxiv. p. 86, a. 22: *ἀλλὰ τῶν μὲν εἰρημένων ἔνια λογικά ἐστι· μάλιστα δὲ δῆλον ὅτι ἡ καθόλου κυριωτέρα, ὅτι—ὁ δὲ ταύτην ἔχων τὴν πρότασιν* (the Particular) *τὸ καθόλου οὐδαμῶς οἶδεν, οὔτε δυνάμει οὔτ' ἐνεργείᾳ.*

you might have learnt from a direct observation of sense; whereas in that of the Universal the conclusion teaches you more than you could have learnt from direct sensation, and comes into correlation with the highest form of our intellectual nature.

Next, Aristotle compares the Affirmative with the Negative demonstration, and shows that the Affirmative is the better. Of two demonstrations (he lays it down) that one which proceeds upon a smaller number of postulates, assumptions, or propositions, is better than the other; for, to say nothing of other reasons, it conducts you more speedily to knowledge than the other, and that is an advantage. Now, both in the affirmative and in the negative syllogism, you must have three terms and two propositions; but in the affirmative you assume only that something *is;* while in the negative you assume both that something *is*, and that something *is not*. Here is a double assumption instead of a single; therefore the negative is the worse or inferior of the two.[b] Moreover, for the demonstration of a negative conclusion, you require one affirmative premiss (since from two negative premisses nothing whatever can be concluded); while for the demonstration of an affirmative conclusion, you must have two affirmative premisses, and you cannot admit a negative. This, again, shows that the affirmative is logically prior, more trustworthy, and better than the negative.[c] The negative is only intelligible and knowable through the affirmative, just as *Non-Ens* is knowable only through *Ens*. The affirmative demonstration therefore, as involving better principles, is, on this ground also, better than the nega-

[a] Analyt. Post. I. xxiv, p. 86, a. 29: καὶ ἡ μὲν καθόλου νοητή, ἡ δὲ κατὰ μέρος εἰς αἴσθησιν τελευτᾷ. Compare xxiii. p. 84, b. 39, where we noticed the doctrine that Νοῦς is the *unit* of scientific demonstration.

[b] Ibid. I. xxv. p. 86, a. 31-b. 9.

[c] Ibid. b. 10-30.

tive.[a] *A fortiori*, it is also better than the demonstration by way of *Reductio ad Absurdum*, which was the last case to be considered. This, as concluding only indirectly and from impossibility of the contradictory, is worse even than the negative; much more therefore is it worse than the direct affirmative.[b]

If we next compare one Science with another, the prior and more accurate of the two is, (1) That which combines at once the ὅτι and the διότι; (2) That which is abstracted from material conditions, as compared with that which is immersed therein—for example, arithmetic is more accurate than harmonics; (3) The more simple as compared with the more complex: thus, arithmetic is more accurate than geometry, a monad or unit is a substance without position, whereas a point (more concrete) is a substance with position.[c] One and the same science is that which belongs to one and the same generic subject-matter. The premisses of a demonstration must be included in the same genus with the conclusion; and where the ultimate premisses are heterogeneous, the cognition derived from them must be considered as not one but a compound of several.[d] You may find two or more distinct middle terms for

[a] Analyt. Post. I. xxv. p. 86, b. 30-39.

[b] Ibid. I. xxvi. p. 87, a. 2-30. Waitz (II. p. 370), says: "deductio (ad absurdum), quippe quæ per ambages cogat, post ponenda est demonstrationi rectæ."

Philoponus says (Schol. pp. 234-235, Brand.) that the Commentators all censured Aristotle for the manner in which he here laid out the Syllogism δι' ἀδυνάτου. I do not, however, find any such censure in Themistius. Philoponus defends Aristotle from the censure.

[c] Analyt. Post. I. xxvii. p. 87, a. 31-37. Themistius, Paraphras. p. 60, ed. Speng.: *κατ' ἄλλον δὲ (τρόπον), ἐὰν ἡ μὲν περὶ ὑποκείμενά τινα καὶ αἰσθητὰ πραγματεύηται, ἡ δὲ περὶ νοητὰ καὶ καθόλου.*

Philoponus illustrates this (Schol. p. 235, b. 41, Br.): *οἷον τὰ Θεοδοσίου σφαιρικὰ ἀκριβέστερά ἐστιν ἐπιστήμη τῆς τῶν Αὐτολύκου περὶ κινουμένης σφαίρας.* &c.

[d] Analyt. Post. I. xxviii. p. 87, a. 38-b. 5. Themistius, p. 61: *δῆλον δὲ τοῦτο γίνεται προϊοῦσιν ἐπὶ τὰς ἀναποδείκτους ἀρχάς· αὗται γὰρ εἰ μηδεμίαν ἔχοιεν συγγένειαν, ἕτεραι αἱ ἐπιστῆμαι.*

demonstrating the same conclusion; sometimes out of the same logical series or table, sometimes out of different tables.[a]

There cannot be demonstrative cognition of fortuitous events,[b] for all demonstration is either of the necessary or of the customary. Nor can there be demonstrative cognition through sensible perception. For though by sense we perceive a thing as such and such (through its sensible qualities), yet we perceive it inevitably as *hoc aliquid, hic, et nunc.* But the Universal cannot be perceived by sense; for it is neither *hic* nor *nunc*, but *semper et ubique.*[c] Now demonstrations are all accomplished by means of the Universal, and demonstrative cognition cannot therefore be had through sensible perception. If the equality of the three angles of a triangle to two right angles were a fact directly perceivable by sense, we should still have looked out for a demonstration thereof: we should have no proper scientific cognition of it (though some persons contend for this); for sensible perception gives us only particular cases, and Cognition or Science proper comes only through knowing the Universal.[d] If, being on the surface of the moon, we had on any one occasion

[a] Analyt. Post. I. xxix. p. 87, b. 5-18. Aristotle gives an example to illustrate this general doctrine: *τὸ ἥδεσθαι, τὸ κινεῖσθαι, τὸ ἠρεμίζεσθαι, τὸ μεταβάλλειν.* As he includes these terms and this subject among the topics for demonstration, it is difficult to see where he would draw a distinct line between topics for Demonstration and topics for Dialectic.

[b] Ibid. xxx. p. 87, b. 19-27.

[c] Ibid. xxxi. p. 87, b. 28: *εἰ γὰρ καὶ ἔστιν ἡ αἴσθησις τοῦ τοιοῦδε καὶ μὴ τοῦδέ τινος, ἀλλ' αἰσθάνεσθαί γε ἀναγκαῖον τόδε τι καὶ ποῦ καὶ νῦν.*

[d] Ibid. b. 35: *δῆλον ὅτι καὶ εἰ ἦν αἰσθάνεσθαι τὸ τρίγωνον ὅτι δυσὶν ὀρθαῖς ἴσας ἔχει τὰς γωνίας, ἐζητοῦμεν ἂν ἀπόδειξιν, καὶ οὐχ (ὥσπερ φασί τινες) ἠπιστάμεθα· αἰσθάνεσθαι μὲν γὰρ ἀνάγκη καθ' ἕκαστον, ἡ δ' ἐπιστήμη τῷ τὸ καθόλου γνωρίζειν ἐστίν.*

Euclid, in the 20th Proposition of his first Book, demonstrates that any two sides of a triangle are together greater than the third side. According to Proklus, the Epikureans derided the demonstration of such a point as absurd; and it seems that some contemporaries of Aristotle argued in a similar way, judging by the phrase *ὥσπερ φασί τινες.*

seen the earth between us and the sun, we could not have known from that single observation that such interposition is the cause universally of eclipses. We cannot directly by sense perceive the Universal, though sense is the *principium* of the Universal. By multiplied observation of sensible particulars, we can hunt out and elicit the Universal, enunciate it clearly and separately, and make it serve for demonstration.[a] The Universal is precious, because it reveals the Cause or διότι, and is therefore more precious, not merely than sensible observation, but also than intellectual conception of the ὅτι only, where the Cause or διότι lies apart, and is derived from a higher genus. Respecting First Principles or *Summa Genera*, we must speak elsewhere.[b] It is clear, therefore, that no demonstrable matter can be known, properly speaking, from direct perception of sense; though there are cases in which nothing but the impossibility of direct observation drives us upon seeking for demonstration. Whenever we can get an adequate number of sensible observations, we can generalize the fact; and in some instances we may perhaps not seek for any demonstrative knowledge (*i.e.* to explain it by any higher principle). If we could see the pores in glass and the light passing through them, we should learn through many such observations why combustion arises on the farther side of the glass; each of our observations would have been separate and individual,

[a] Analyt. Post. I. xxxi. p. 88, a. 2: *οὐ μὴν ἀλλ' ἐκ τοῦ θεωρεῖν τοῦτο πολλάκις συμβαῖνον, τὸ καθόλου ἂν θηρεύσαντες ἀπόδειξιν εἴχομεν· ἐκ γὰρ τῶν καθ' ἕκαστα πλειόνων τὸ καθόλου δῆλον.* Themistius, p. 62, Sp.: *ἀρχὴ μὲν γὰρ ἀποδείξεως αἴσθησις, καὶ τὸ καθόλου ἐννοοῦμεν διὰ τὸ πολλάκις αἰσθέσθαι.*

[b] Analyt. Post. I. xxxi. p. 88, a. 6: *τὸ δὲ καθόλου τίμιον, ὅτι δηλοῖ τὸ αἴτιον· ὥστε περὶ τῶν τοιούτων ἡ καθόλου τιμιωτέρα τῶν αἰσθήσεων καὶ τῆς νοήσεως, ὅσων ἕτερον τὸ αἴτιον· περὶ δὲ τῶν πρώτων ἄλλος λόγος.*

By *τὰ πρῶτα*, he means the *ἀρχαὶ* of Demonstration, which are treated especially in II. xix. See Biese, Die Philos. des Aristoteles, p. 277.

but we should by intellect generalize the result that all the cases fall under the same law.[a]

Aristotle next proceeds to refute, at some length, the supposition, that the *principia* of all syllogisms are the same. We see at once that this cannot be so, because some syllogisms are true, others false. But, besides, though there are indeed a few Axioms essential to the process of demonstration, and the same in all syllogisms, yet these are not sufficient of themselves for demonstration. There must farther be other premisses or matters of evidence—propositions immediately true (or established by prior demonstrations) belonging to each branch of Science specially, as distinguished from the others. Our demonstration relates *to* these special matters or premisses, though it is accomplished *out of* or by means of the common Axioms.[b]

Science or scientific Cognition differs from true Opinion, and the *cognitum* from the *opinatum*, herein, that Science is of the Universal, and through necessary premisses which cannot be otherwise; while Opinion relates to matters true, yet which at the same time may possibly be false. The belief in a proposition which is immediate (*i. e.* undemonstrable) yet not necessary, is Opinion; it is not Science, nor is it Noûs or Intellect—the *principium* of Science or scientific Cognition.

[a] Analyt. Post. I. xxxi. p. 88, a. 9-17. *ἔστι μέντοι ἕνια ἀναγόμενα εἰς αἴσθήσεως ἔκλειψιν ἐν τοῖς προβλήμασιν· ἕνια γὰρ εἰ ἑώρωμεν, οὐκ ἂν ἐζητοῦμεν, οὐχ ὡς εἰδότες τῷ ὁρᾶν, ἀλλ' ὡς ἔχοντες τὸ καθόλου ἐκ τοῦ ὁρᾶν.*

The text of this and the succeeding words seems open to doubt, as well as that of Themistius (p. 63). Waitz in his note (p. 374) explains the meaning clearly:—"non ita quidem ut ipsa sensuum perceptio scientiam afferat; sed ita ut quod in singulis accidere videamus, idem etiam in omnibus accidere coniicientes universe intelligamus."

[b] Analyt. Post. I. xxxii. p. 88, a. 18-b. 29. *αἱ γὰρ ἀρχαὶ διτταί, ἐξ ὧν τε καὶ περὶ ὃ· αἱ μὲν οὖν ἐξ ὧν κοιναί, αἱ δὲ περὶ ὃ ἴδιαι, οἷον ἀριθμός, μέγεθος.* Compare xi. p. 77, a. 27. See Barthélemy St. Hilaire, Plan Général des Derniers Analytiques, p. lxxxi.

Such beliefs are fluctuating, as we see every day; we all distinguish them from other beliefs, which we cannot conceive not to be true and which we call cognitions.[a] But may there not be Opinion and Cognition respecting the same matters? There may be (says Aristotle) in different men, or in the same man at different times; but not in the same man at the same time. There may also be, respecting the same matter, true opinion in one man's mind, and false opinion in the mind of another.[b]

With some remarks upon Sagacity, or the power of divining a middle term in a time too short for reflection (as when the friendship of two men is on the instant referred to the fact of their having a common enemy), the present book is brought to a close.[c]

[a] Analyt. Post. I. xxxiii. p. 88, b. 30-p. 89, a. 10.

[b] Ibid. p. 89, a. 11-b. 6. That eclipse of the sun is caused by the interposition of the moon was to the astronomer Hipparchus scientific Cognition; for he saw that it *could not* be otherwise. To the philosopher Epikurus it was Opinion; for he thought that it *might* be otherwise (Themistius, p. 66, Spengel).

[c] Ibid. xxxiv. p. 89, b. 10-20.

CHAPTER VIII.

ANALYTICA POSTERIORA II.

ARISTOTLE begins the Second Book of the Analytica Posteriora by an enumeration and classification of Problems or Questions suitable for investigation. The matters knowable by us may be distributed into four classes :—

Ὅτι.	Διότι.	Εἰ ἔστι.	Τί ἐστι.
1. Quod.	2. Cur.	3. An sit.	4. Quid sit.

Under the first head come questions of Fact; under the second head, questions of Cause or Reason; under the third, questions of Existence; under the fourth, questions of Essence. Under the first head we enquire, Whether a fact or event is so or so? Whether a given subject possesses this or that attribute, or is in this or that condition? enumerating in the question the various supposable alternatives. Under the second head, we assume the first question to have been affirmatively answered, and we proceed to enquire, What is the cause or reason for such fact, or such conjunction of subject and attribute? Under the third head, we ask, Does a supposed subject exist? And if the answer be in the affirmative, we proceed to enquire, under the fourth head, What is the essence of the subject?[a]

[a] Analyt. Post. II. i. p. 89, b. 23, seq. Themistius observes, p. 67, Speng.: *ζητοῦμεν τοίνυν ἢ περὶ ἁπλοῦ τινὸς καὶ ἀσυνθέτου, ἢ περὶ συνθέτου καὶ ἐν προτάσει.* Themistius has here changed Aristotle's order, and placed the third and fourth heads before the first and second. Compare Schol. p. 240, b. 30; p. 241, a. 18. The Scholiast complains of the enigmatical style of Aristotle: *τῇ γριφώδει τοῦ ῥητοῦ ἐπαγγελίᾳ* (p. 240, b. 25).

We have here two distinct pairs of *Quæsita*: Obviously the second head presupposes the first, and is consequent thereupon; while the fourth also presupposes the third. But it might seem a more suitable arrangement (as Themistius and other expositors have conceived) that the third and fourth heads should come first in the list, rather than the first and second; since the third and fourth are simpler, and come earlier in the order of philosophical exposition, while the first and second are more complicated, and cannot be expounded philosophically until after the philosophical exposition of the others. This is cleared up by adverting to the distinction, so often insisted on by Aristotle, between what is first in order of cognition relatively to us (*nobis notiora*), and what is first in order of cognition by nature (*naturâ notiora*). *To us* (that is to men taken individually and in the course of actual growth) the phenomena of nature[a] present themselves as particulars confused and complicated in every way, with attributes essential and accidental implicated together: we gradually learn first to see and compare them as particulars, next to resolve them into generalities, bundles, classes, and partially to explain the *Why* of some by means of others. Here we start from facts embodied in propositions, that include subjects clothed with their attributes. But in the *order of nature* (that is, in the order followed by those who know the *scibile* as a whole, and can expound it scientifically) that which

[a] Schol. Philopon. p. 241, a. 18-24: *τούτων τὸ εἰ ἔστι καὶ τὸ τί ἐστιν εἰσὶν ἁπλᾶ, τὸ δὲ ὅτι καὶ τὸ διότι σύνθετα—πρότερα γὰρ ἡμῖν καὶ γνωριμώτερα τὰ σύνθετα, ὡς τῇ φύσει τὰ ἁπλᾶ.*

Mr. Poste observes upon this quadruple classification by Aristotle (p. 96):—"The two last of these are problems of Inductive, but first principles of Deductive, Science; the one being the hypothesis, the other the definition. The attribute as well as the subject must be defined (I. x.), so that to a certain degree the second problem also is assumed among the principles of Demonstration."

comes first is the Universal or the simple Subject abstracted from its predicates or accompaniments: we have to enquire, first, whether a given subject exists; next, if it does exist, what is its real constituent essence or definition. We thus see the reason for the order in which Aristotle has arranged the two co-ordinate pairs of *Quæsita* or Problems, conformable to the different processes pursued, on the one hand, by the common intellect, growing and untrained—on the other, by the mature or disciplined intellect, already competent for philosophical exposition and applying itself to new *incognita*.

Comparing together these four *Quæsita*, it will appear that in the first and third (*Quod* and *An*), we seek to find out whether there is or is not any middle term. In the second and fourth (*Cur* and *Quid*), we already know or assume that there *is* a middle term; and we try to ascertain what that middle term is.* The enquiry *Cur*, is in the main analogous to the enquiry *Quid*; in both cases, we aim at ascertaining what the cause or middle term is. But, in the enquiry *Cur*, what we discover is perhaps some independent fact or event, which is the cause of the event *quæsitum*; while, in the enquiry *Quid*, what we seek is the real essence or definition of the substance — the fundamental, generating, immanent cause of its concomitant attributes. Sometimes, however, the *Quid* and the *Cur* are only different ways of stating the same thing. *E.g.*, *Quid est eclipsis lunæ?* Answer: The essence of an eclipse is a privation of light from the moon, through intervention of the earth between her and the sun. *Cur locum habet eclipsis lunæ?* Answer: Because the light of the sun is prevented from reaching the moon

* Analyt. Post. II. i. p. 89, b. 37-p. 90, a. 7. *συμβαίνει ἄρα ἐν ἁπάσαις ταῖς ζητήσεσι ζητεῖν ἢ εἰ ἔστι μέσον, ἢ τί ἐστι τὸ μέσον· τὸ μὲν γὰρ αἴτιον τὸ μέσον, ἐν ἅπασι δὲ τοῦτο ζητεῖται.* Compare Schol. p. 241, b. 10, Br.

by intervention of the earth. Here it is manifest that the answers to the enquiries *Quid* and *Cur* are really and in substance the same fact, only stated in different phrases.[a]

That the *quæsitum* in all these researches is a middle term or medium, is plain from those cases wherein the medium is perceivable by sense; for then we neither require nor enter upon research. For example, if we were upon the moon, we should see the earth coming between us and the sun, now and in each particular case of eclipse. Accordingly, after many such observations, we should affirm the universal proposition, that such intervention of the earth was the cause of eclipses; the universal becoming known to us through induction of particular cases.[b] The middle term, the Cause, the *Quid*, and the *Cur*, are thus all the same enquiry, in substance; though sometimes such *quæsitum* is the quiddity or essential nature of the thing itself (as the essence of a triangle is the cause or ground of its having its three angles equal to two right angles, as well as of its other properties), sometimes it is an extraneous fact.[c]

But how or by what process is this *quæsitum* obtained and made clear? Is it by Demonstration or by Definition? What is Definition, and what matters admit of Definition?[d] Aristotle begins by treating the question dialectically; by setting out a series of doubts

[a] Analyt. Post. II. ii. p. 90, a. 14-23, 31: *τὸ τί ἐστιν εἰδέναι ταὐτό ἐστι καὶ διὰ τί ἐστιν.*

[b] Ibid. a. 24-30. *ἐκ γὰρ τοῦ αἰσθέσθαι καὶ τὸ καθόλου ἐγένετο ἂν ἡμῖν εἰδέναι· ἡ μὲν γὰρ αἴσθησις ὅτι νῦν ἀντιφράττει· καὶ γὰρ δῆλον ὅτι νῦν ἐκλείπει· ἐκ δὲ τούτου τὸ καθόλου ἂν ἐγένετο.*

The purport and relation of this quadruple classification of problems is set forth still more clearly in the sixth book of the Metaphysica (Z. p. 1041), with the explanations of Bonitz, Comm. pp. 358, 359.

[c] Analyt. Post. II. ii. p. 90, a. 31.

[d] Ibid. iii. p. 90, a. 37: *τί ἐστιν ὁρισμός, καὶ τίνων, εἴπωμεν, διαπορήσαντες πρῶτον περὶ αὐτῶν.*

and difficulties. First, Is it possible that the same cognition, and in the same relation, can be obtained both by Definition and by Demonstration? No; it is not possible. It is plain that much that is known by Demonstration cannot be known by Definition; for we have seen that conclusions both particular and negative are established by Demonstration (in the Third and Second figures), while every Definition is universal and affirmative. But we may go farther and say, that even where a conclusion universal and affirmative is established (in the First figure) by Demonstration, that same conclusion can never be known by Definition; for if it could be known by Definition, it might have been known without Demonstration. Now we are assured, by an uncontradicted induction, that this is not the fact; for that which we know by Demonstration is either a proprium of the subject *per se*, or an accident or concomitant; but no Definition ever declares either the one or the other: it declares only the essence.[a]

Again, let us ask, *vice versâ*, Can everything that is declared by Definition, or indeed anything that is declared by Definition, be known also by Demonstration? Neither is this possible. One and the same *cognitum* can be known only by one process of cognition. Definitions are the *principia* from which Demonstration departs; and we have already shown that in going back upon demonstrations, we must stop somewhere, and must recognize some *principia* undemonstrable.[b] The Definition can never be demonstrated,

[a] Analyt. Post. II. iii. p. 90, b. 13: *ἱκανὴ δὲ πίστις καὶ ἐκ τῆς ἐπαγωγῆς· οὐδὲν γὰρ πώποτε ὁρισάμενοι ἔγνωμεν, οὔτε τῶν καθ' αὑτὸ ὑπαρχόντων οὔτε τῶν συμβεβηκότων. ἔτι εἰ ὁ ὁρισμὸς οὐσίας τις γνωρισμός, τά γε τοιαῦτα φανερὸν ὅτι οὐκ οὐσίαι.*

[b] Ibid. b. 18-27.

for it declares only the essence of the subject, and does not predicate anything concerning the subject; whereas Demonstration assumes the essence to be known, and deduces from such assumption an attribute distinct from the essence.[a]

Prosecuting still farther the dialectical and dubitative treatment,[b] Aristotle now proceeds to suggest, that the Essence (that is, the entire Essence or Quiddity), which is declared by Definition, can never be known by Demonstration. To suppose that it could be so known, would be inconsistent with the conditions of the syllogistic proof used in demonstrating. You prove by syllogism, through a middle term, some predicate or attribute; *e.g.*, because A is predicable of all B, and B is predicable of all C, therefore A is predicable of all C. But you cannot prove, through the middle term B, that A is the essence or quiddity of C, unless by assuming in the premisses that B is the essence of C, and that A is the essence of B; accordingly, that the three propositions, AB, BC, AC, are all co-extensive and reciprocate with each other. Here then you have assumed as your premisses two essential propositions, AB, BC, in order to prove as an essential proposition the conclusion AC. But this is inadmissible; for your premisses require demonstration as much as your conclusion. You have committed a *Petitio Principii*;[c] you

[a] Analyt. Post. II. iii. p. 90, b. 33, seq.: *ἔτι πᾶσα ἀπόδειξις τί κατά τινος δείκνυσιν, οἷον ὅτι ἔστιν ἢ οὐκ ἔστιν· ἐν δὲ τῷ ὁρισμῷ οὐδὲν ἕτερον ἑτέρου κατηγορεῖται, οἷον οὔτε τὸ ζῷον κατὰ τοῦ δίποδος οὐδὲ τοῦτο κατὰ τοῦ ζῴου—ὁ μὲν οὖν ὁρισμὸς τί ἐστι δηλοῖ, ἡ δὲ ἀπόδειξις ὅτι ἢ ἔστι τόδε κατὰ τοῦδε ἢ οὐκ ἔστιν.*

Themistius (p. 71, Speng.) distinguishes the *ὁρισμός* itself from *ἡ πρόταστις ἡ τὸν ὁρισμὸν κατηγορούμενον ἔχουσα.*

[b] Analyt. Post. II. iv. p. 91, a. 12: *ταῦτα μὲν οὖν μέχρι τούτου διηπορήσθω.* One would think, by these words, that *τὸ διαπορεῖν* (or the dubitative treatment) finished here. But the fact is not so: that treatment is continued for four chapters more, to the commencement of ch. viii. p. 93.

[c] Ibid. a. 12-32. *ταῦτα δ' ἀνάγκη*

have assumed in your minor premiss the very point to be demonstrated.

If you cannot obtain Definition as the conclusion of syllogistic Demonstration, still less can you obtain it through the method of generic and specific Division; which last method (as has been already shown in the Analytica Priora) is not equal even to the Syllogism in respect of usefulness and efficacy.[a] You cannot in this method distinguish between propositions both true and essential, and propositions true but not essential; you never obtain, by asking questions according to the method of generic subdivision, any premisses from which the conclusion follows by necessity. Yet this is what you ought to obtain for the purpose of Demonstration; for you are not allowed to enunciate the full actual conclusion among the premisses, and require assent to it. Division of a genus into its species will often give useful information, as Induction also will;[b] but neither the one nor the other will be equivalent to a demonstration. A definition obtained only from subdivisions of a genus, may always be challenged, like a syllogism without its middle term.

ἀντιστρέφειν· εἰ γὰρ τὸ A *τοῦ* Γ *ἴδιον, δῆλον ὅτι καὶ τοῦ* B *καὶ τοῦτο τοῦ* Γ, *ὥστε πάντα ἀλλήλων.—λαμβάνει οὖν ὃ δεῖ δεῖξαι· καὶ γὰρ τὸ* B *ἔστι τί ἐστιν ἄνθρωπος.* Themistius, pp. 72, 73: *τὸν ἀποδεικνύντα τὸ τί ἦν εἶναι τοῦ ἀνθρώπου, ἄλλο τι δεῖ προλαβεῖν τοῦ αὐτοῦ τὸ τί ἦν εἶναι.—οὗ γὰρ βούλεται τὸν ὁρισμὸν ἀποδεῖξαι, τούτου προλαμβάνει τινὰ ὁρισμὸν εἶναι χωρὶς ἀποδείξεως.*

M. Barthélemy St. Hilaire, notes, p. 205:—"Il faut donc, pour conclure par syllogisme que A est la définition essentielle de C, que A soit la définition essentielle de B, et que B soit lui-même la définition essentielle de C. Mais alors la définition de la chose sera dans le moyen terme lui-même, avant d'être dans la conclusion; en effet, la mineure: B est la définition essentielle de C, donne la définition essentielle de C, sans qu'il soit besoin d'aller jusqu'à la conclusion. Donc la démonstration de l'essence ainsi entendue est absurde."

[a] Analyt. Post. II. v. p. 91, b. 12, seq.; Analyt. Prior. I. xxxi. p. 46, a. 31. Aristotle here alludes to the method pursued by Plato in the Sophistes and Politicus, though he does not name Plato: *ἡ διὰ τῶν διαιρίσεων ὁδός*, &c.

[b] Analyt. Post. II. v. p. 91, b. 15-33: *οὐδὲ γὰρ ὁ ἐπάγων ἴσως ἀποδείκνυσιν, ἀλλ' ὅμως δηλοῖ τι.* Compare Themistius, p. 74.

Again, neither can you arrive at the definition of a given subject, by assuming in general terms what a definition ought to be, and then declaring a given form of words to be conformable to such assumption; because your minor premiss must involve *Petitio Principii*. The same logical fault will be committed, if you take your departure from an hypothesis in which you postulate the definition of a certain subject, and then declare inferentially what the definition of its contrary must be. The definition which you here assume requires proof as much as that which you infer from it.[a] Moreover, neither by this process, nor by that of generic subdivision, can you show any reason why the parts of the definition should coalesce into one essential whole. If they do not thus coalesce—if they be nothing better than distinct attributes conjoined in the same subject, like *musicus* and *grammaticus*—the real essence is not declared, and the definition is not a good one.[b]

After stating some other additional difficulties which seem to leave the work of Definition inexplicable, Aristotle relinquishes the dubitative treatment, and looks out for some solution of the puzzle: How may it be possible that the Definition shall become known?[c] He

[a] Analyt. Post. II. vi. p. 92, a. 6-28. Themist. p. 76.

Rassow renders *ἐξ ὑποθέσεως*—"assumptâ generali definitionis notione;" and also says: "*τὸ τί ἦν εἶναι*—generalem definitionis notionem; *τὸ τί ἐστιν*—certam quandam definitionem, significare perspicuum est." (Aristotelis de Notionis Definitione Doctrina, p. 65).

[b] Analyt. Post. II. vi. p. 92, a. 32. That the parts of the definition must coalesce into one unity is laid down again in the Metaphysica, Z. pp. 1037, 1038, where Aristotle makes reference to the Analytics as having already treated the same subject, and professes an intention to complete what has been begun in the Analytica; *ἐφ' ὅσον ἐν τοῖς Ἀναλυτικοῖς περὶ ὁρισμοῦ μὴ εἴρηται.*

[c] Analyt. Post. II. vii. p. 92, a. 34, seq. The *ἀπόρια* continue to the end of ch. vii. He goes on, ch. viii. p. 93, a. 1-2: *πάλιν δὲ σκεπτέον τί τούτων λέγεται καλῶς, καὶ τί οὐ καλῶς*, &c. "Tout ce qui précède ne représente pas la théorie proprement dite; ce n'est qu'une discussion préliminaire" (Barth. St. Hilaire, not. p. 222). These difficult chapters are well illustrated by Hermann Rassow, ch. i. pp. 9-14.

has already told us that to know the essence of a thing is the same as to know the cause or reason of its existence; but we must first begin by knowing that the *definiendum* exists; for there can be no definition of a non-entity, except a mere definition of the word, a nominal or verbal definition. Now sometimes we know the existence of the subject by one or other of its accidental attributes; but this gives us no help towards finding the definition.[a] Sometimes, however, we obtain a partial knowledge of its essence along with the knowledge of its existence; when we know it along with some constant antecedent, or through some constant, though derivative, consequent. Knowing thus much, we can often discover the cause or fundamental condition thereof, which is the essence or definition of the subject.[b] Indeed, it may happen that the constant derivative, and the fundamental essence on which it depends, become known both together; or, again, the cause or fundamental condition may perhaps not be the essence of the subject alone, but some fact including other subjects also; and this fact may then be stated as a middle term. Thus, in regard to eclipse of the moon, we know the constant phenomenal fact about it, that, on a certain recurrence of the time of full moon, the moon casts no light and makes no shadow. Hence we proceed to search out the cause. Is it interposition of the earth, or conversion of the

[a] Analyt. Post. II. viii. p. 93, a. 3: *ἐπεὶ δ' ἐστίν, ὡς ἔφαμεν, ταὐτὸν τὸ εἰδέναι τί ἐστι καὶ τὸ εἰδέναι τὸ αἴτιον τοῦ εἰ ἔστι·* Ibid. a. 24: *ὅσα μὲν οὖν κατὰ συμβεβηκὸς οἴδαμεν ὅτι ἔστιν, ἀναγκαῖον μηδαμῶς ἔχειν πρὸς τὸ τί ἐστιν· οὐδὲ γὰρ ὅτι ἔστιν ἴσμεν· τὸ δὲ ζητεῖν τί ἐστι μὴ ἔχοντας ὅτι ἔστι, μηδὲν ζητεῖν ἐστίν. καθ' ὅσων δ' ἔχομέν τι, ῥᾷον· ὥστε ὡς ἔχομεν ὅτι ἔστιν, οὕτως ἔχομεν καὶ πρὸς τὸ τί ἐστιν.* Compare Brentano, Ueber die Bedeutung des Seienden nach Aristoteles, p. 17.

[b] Analyt. Post. II. viii. p. 93, a. 21. Themistius, p. 79, Speng.: *ὅσα δὲ ἀπὸ τῶν οἰκείων τε καὶ ἐξ αὐτοῦ τοῦ πράγματος, ἀπὸ τούτων ἤδη ῥᾷον εἰς τὸ τί ἐστι μεταβαίνομεν.*

moon's body, or extinction of her light, &c.? The new fact when shown, must appear as a middle term, throwing into syllogistic form (in the First figure) the cause or rational explanation of a lunar eclipse; showing not merely that there is an eclipse, but what an eclipse is, or what is its definition.[a]

Aristotle has thus shown how the Essence or Quiddity (*τί ἐστι*) may become known in this class of cases. There is neither syllogism nor demonstration thereof, yet it is declared through syllogism and demonstration: though no demonstration thereof is possible, yet you cannot know it without demonstration, wherever there is an extraneous cause.[b]

But the above doctrine will hold only in cases where there *is* a distinct or extraneous cause; it will not hold in cases where there is none. It is only in the former (as has been said) that a middle term can be shown; rendering it possible that Quiddity or Essence should be declared by a valid formal syllogism, though it cannot be demonstrated by syllogism. In the latter, where there

[a] Analyt. Post. II. viii. p. 93, a. 30-b. 14.

[b] Ibid. b. 15-20: *ὥστε συλλογισμὸς μὲν τοῦ τί ἐστιν οὐ γίνεται οὐδ' ἀπόδειξις, δῆλον μέντοι διὰ συλλογισμοῦ καὶ δι' ἀποδείξεως.*

Mr. Poste translates an earlier passage (p. 93, a. 5) in this very difficult chapter as follows (p. 107): "If one cause is demonstrable, another indemonstrable cause must be the intermediate; and the proof is in the first figure, and the conclusion affirmative and universal. In this mode of demonstrating the essence, we prove one definition by another, for the intermediate that proves an essence or a peculiar predicate must itself be an essence or a peculiar predicate. Of two definitions, then, one is proved and the other assumed; and, as we said before, this is not a demonstration but a dialectical proof of the essence." Mr. Poste here translates *λογικὸς συλλογισμός* "dialectical proof." I understand it rather as meaning a syllogism, *τοῦ ὑπάρχειν* simply (Top. I. v. p. 102, b. 5), in which all that you really know is that the predicate belongs to the subject, but in which you *assume* besides that it belongs to the subject *essentially*. It is not a demonstration because, in order to obtain Essence in the conclusion, you are obliged to postulate Essence in your premiss. (See Alexander ad Topic. I. p. 263, Br.). You have therefore postulated a premiss which required proof as much as the conclusion.

is no distinct cause, no such middle term can be enunciated: the Quiddity or Essence must be assumed as an immediate or undemonstrable *principium*, and must be exposed or set out in the best manner practicable as an existent reality, on Induction or on some other authority. The arithmetician makes his first steps by assuming both what a monad is and that there exists such a monad.[a]

We may distinguish three varieties of Definition. 1. Sometimes it is the mere explanation what a word signifies: in this sense, it has nothing to do with essence or existence: it is a nominal definition and nothing more.[b] 2. Sometimes it enunciates the Essence, cause, or reason of the *definitum*; this will happen where the cause is distinct or extraneous, and where there is accordingly an intervening middle term: the definition will then differ from a demonstration only by condensing into one enunciation the two premisses and the conclusion which together constitute the demonstration.[c] 3. Sometimes it is an immediate proposition, an indemonstrable hypothesis, assuming Essence or Quiddity; the essence itself being cause, and no extraneous cause—no intervening middle term—being obtainable.[d]

[a] Analyt. Post. II. ix. p. 93, b. 21. *ἔστι δὲ τῶν μὲν ἑτερόν τι αἴτιον, τῶν δ' οὐκ ἔστιν. ὥστε δῆλον ὅτι καὶ τῶν τί ἐστι τὰ μὲν ἄμεσα καὶ ἀρχαί εἰσιν, ἃ καὶ εἶναι καὶ τί ἐστιν ὑποθέσθαι δεῖ ἢ ἄλλον τρόπον φανερὰ ποιῆσαι. ὅπερ ὁ ἀριθμητικὸς ποιεῖ· καὶ γὰρ τί ἐστι τὴν μονάδα ὑποτίθεται, καὶ ὅτι ἔστιν.*

Themistius, p. 80: *ἃ καὶ εἶναι καὶ τί ἐστιν ὑποθέσθαι δεῖ, ἢ ἄλλον τρόπον φανερὰ ποιῆσαι ἐξ ἐπαγωγῆς ἢ πίστεως ἢ ἐμπειρίας.* Rassow, De Notionis Definitione, pp. 18-22.

[b] Analyt. Post. II. x. p. 93, b. 29-37.

[c] Ibid. p. 93, b. 38, seq. *οἷον ἀπόδειξις τοῦ τί ἐστιν, τῇ θέσει διαφέρων τῆς ἀποδείξεως*—*συλλογισμὸς τοῦ τί ἐστι, πτώσει διαφέρων τῆς ἀποδείξεως*—differing "situ et positione terminorum" (Julius Pacius, p. 493).

[d] Ibid. p. 94, a. 9: *ὁ δὲ τῶν ἀμέσων ὁρισμός, θέσις ἐστὶ τοῦ τί ἐστιν ἀναπόδεικτος.* Compare I. xxiv. p. 85, b. 24: *ᾧ γὰρ καθ' αὑτὸ ὑπάρχει τι, τοῦτο αὐτὸ αὑτῷ αἴτιον.* See Kampe, Die Erkenntniss-theorie des Aristoteles, p. 212, seq.

To know or cognize is, to know the Cause: when we know the Cause, we are satisfied with our cognition. Now there are four Causes, or varieties of Cause:—

1. The Essence or Quiddity (Form)—*τὸ τί ἦν εἶναι.*
2. The necessitating conditions (Matter)—*τὸ τίνων ὄντων ἀνάγκη τοῦτ' εἶναι.*
3. The proximate mover or stimulator of change (Efficient)—*ἢ τί πρῶτον ἐκίνησε.*
4. That for the sake of which (Final Cause or End)—*τὸ τίνος ἕνεκα.*

All these four Causes (Formal, Material, Efficient, Final) appear as middle terms in demonstrating. We can proceed through the medium either of Form, or of Matter, or of Efficient, or of End. The first of the four has already been exemplified—the demonstration by Form. The second appears in demonstrating that the angle in a semi-circle is always a right angle; where the middle term (or matter of the syllogism, *τὸ ἐξ οὗ*) is, that such angle is always the half of two right angles.* The Efficient is the middle term, when to the question, Why did the Persians invade Athens? it is answered that the Athenians had previously invaded Persia along with the Eretrians. (All are disposed to attack those who have attacked them first; the Athenians attacked the Persians first; *ergo*, the Persians were disposed to attack the Athenians.) Lastly, the Final Cause serves as middle term, when to the question, Why does a man walk after dinner? the response is, For the purpose of keeping up his health. In another way, the middle term here is digestion:

* Analyt. Post. II. xi. p. 94, a. 21-36. Themistius, p. 83: *μάλιστα μὲν γὰρ ἐπὶ πάσης ἀποδείξεως ὁ μέσος ἔστιν οἷον ἡ ὕλη τῷ συλλογισμῷ· οὗτος γὰρ ὁ ποιῶν τὰς δύο προτάσεις, ἐφ' αἷς τὸ συμπέρασμα.*

walking after dinner promotes digestion; digestion is the efficient cause of health.[a]

The Final Cause or End is prior in the order of nature, but posterior to the terms of the conclusion in the order of time or generation; while the Efficient is prior in the order of time or generation. The Formal and Material are simultaneous with the effect, neither prior nor posterior.[b] Sometimes the same fact may proceed both from a Final cause, and from a cause of Material Necessity; thus the light passes through our lantern for the purpose of guiding us in the dark, but also by reason that the particles of light are smaller than the pores in the glass. Nature produces effects of finality, or with a view to some given end; and also effects by necessity, the necessity being either inherent in the substance itself, or imposed by extraneous force. Thus a stone *falls* to the ground by necessity of the first kind, but *ascends* by necessity of the second kind. Among products of human intelligence some spring wholly from design without necessity; but others arise by accident or chance and have no final cause.[c]

That the middle term is the Cause, is equally true in respect to *Entia*, *Fientia*, *Præterita*, and *Futura*; only that in respect to *Entia*, the middle term or Cause must be an *Ens*; in respect to *Fientia* it must be a *Fiens*; in respect to *Præterita*, a *Præteritum*; and in respect to *Futura*, a *Futurum*: that is, in each case, it must be generated at the corresponding time with the major and minor terms in the conclusion.[d] What is

[a] Analyt. Post. II. xi. p. 94, a. 36-b. 21.

[b] Analyt. Post. II. xi. p. 94, b. 21-26. Themistius, p. 83: *ἡ γένεσις οὖν τοῦ μέσου καὶ αἰτίου τὴν αὐτὴν οὐκ ἔχει τάξιν ἐφ' ἁπάντων, ἀλλ' οὗ μὲν πρώτην ὡς ἐπὶ τῶν κινητικῶν, οὗ δὲ τελευταίαν ὡς ἐπὶ τῶν τελῶν καὶ ὧν ἕνεκα, οὗ δ' ἅμα ὡς ἐπὶ τῶν ὁρισμῶν καὶ τοῦ τί ἦν εἶναι.*

[c] Analyt. Post. II. p. 94, b. 27-p. 95, a. 9.

[d] Ibid. xii. p. 95, a. 10, 36: *τὸ γὰρ μέσον ὁμόγονον δεῖ εἶναι*, &c.

the cause of an eclipse of the moon? The cause is, that the earth intervenes between moon and sun; and this is true alike of eclipses past, present, and future. Such an intervention is the essence or definition of a lunar eclipse; the cause is therefore Formal, and cause and effect are simultaneous, occurring at the same moment of time. But in the other three Causes—Material, Efficient, Final—where phenomena are successive and not simultaneous, can we say that the antecedent is cause and the consequent effect, time being, as seems to us, a *continuum*? In cases like this, we can syllogize from the consequent backward to the antecedent; but not from the antecedent forward to the consequent. If the house has been built, we can infer that the foundations have been laid; but, if the foundations have been laid, we cannot infer that the house has been built.[a] There must always be an interval of time during which inference from the antecedent will be untrue; perhaps, indeed, it may never become true. Cause and *causatum* in these three last varieties of Cause, do not universally and necessarily reciprocate with each other, as in the case of the Formal cause. Though time is continuous, events or generations are distinct points marked in a continuous line, and are not continuous with each other.[b] The number of these points that may be taken is indeed infinite; yet we must assume some of them as ultimate and immediate *principia*, in order to construct our syllogism, and provide our middle term.[c] Where the middle term reciprocates and is co-extensive with the major and the minor, in such cases we have generation of phenomena in a cycle; *e.g.*, after the earth has been made

[a] Analyt. Post. II. xii. p. 95, a. 24 seq., b. 32; Julius Pacius, ad loc.; Biese, Die Philosophie des Aristot. pp. 302-303.

[b] Analyt. Post. II. xii. p. 95, a. 39-b. 8; Themistius, p. 86.

[c] Analyt. Post. II. xii. p. 95, b. 14-31: *ἀρχὴ δὲ καὶ ἐν τούτοις ἄμεσος λητέα.*

wet, vapour rises of necessity; hence comes a cloud, hence water; which again falls, and the earth again becomes wet.[a] Finally, wherever our conclusion is not universally and necessarily true, but true only in most cases, our immediate *principia* must also be of the same character; true in most cases, but in most cases only.[b]

How are we to proceed in hunting out those attributes that are predicated *in Quid*,[c] as belonging to the Essence of the subject? The subject being a lowest species, we must look out for such attributes as belong to all individuals thereof, but which belong also to individuals of other species under the same genus. We shall thus find one, two, three, or more, attributes, each of which, separately taken, belongs to various individuals lying out of the species; but the assemblage of which, collectively taken, does not belong to any individual lying out of the species. The assemblage thus found is the Essence; and the enunciation thereof is the Definition of the species. Thus, the triad is included in the genus number; in searching for its definition, therefore, we must not go beyond that genus, nor include any attributes (such as *ens*, &c.) predicable of other subjects as well as numbers. Keeping within the limits of the genus, we find that every triad agrees in being an odd number. But this oddness belongs to other numbers also (pentad, heptad, &c.). We therefore look out for other attributes, and we find that every triad agrees in being a prime number, in two distinct senses: first, that it is not measured by any other number; secondly, that it is not compounded of any other numbers. This last attribute belongs to no other odd number except the triad. We have now an assemblage of attributes, which belong

[a] Analyt. Post. II. xii. p. 95, b. 38-p. 96, a 7. [b] Ibid. p. 96, a. 8-19.
[c] Ibid. xiii. p. 96, a. 22: *πῶς δεῖ θηρεύειν τὰ ἐν τῷ τί ἐστι κατηγορούμενα*;

each of them to every triad, universally and necessarily, and which, taken all together, belong *exclusively* to the triad, and therefore constitute its essence or definition. The triad is a number, odd, and prime in the two senses.[a] The *definitum* and the definition are here exactly co-extensive.

Where the matter that we study is the entire genus, we must begin by distributing it into its lowest species; *e.g.* number into dyad, triad, &c.; in like manner, taking straight line, circle, right angle, &c.[b] We must first search out the definitions of each of these lowest species; and these having been ascertained, we must next look above the genus, to the Category in which it is itself comprised, whether *Quantum*, *Quale*, &c. Having done thus much, we must study the derivative attributes or propria of the lowest species through the common generalities true respecting the larger. We must recollect that these derivative attributes are derived from the essence and definition of the lowest species, the complex flowing from the simple as its *principium*: they belong *per se* only to the lowest species thus defined; they belong to the higher genera only through those species.[c] It is in this way, and not in any other,

[a] Analyt. Post. II. xiii. p. 96, a. 24-b. 14. *εἰ τοίνυν μηδενὶ ὑπάρχει ἄλλῳ ἢ ταῖς ἀτόμοις τριάσι, τοῦτ' ἂν εἴη τὸ τριάδι εἶναι. ὑποκείσθω γὰρ καὶ τοῦτο, ἡ οὐσία ἡ ἑκάστου εἶναι ἡ ἐπὶ ταῖς ἀτόμοις ἔσχατος τοιαύτη κατηγορία. ὥστε ὁμοίως καὶ ἄλλῳ ὁτῳοῦν τῶν οὕτω δειχθέντων τὸ αὐτῷ εἶναι ἔσται.*

[b] Ibid. b. 18. The straight line is the first or lowest of all lines: no other line can be understood, unless we first understand what is meant by a straight line. In like manner the right angle is the first of all angles, the circle the first of all curvilinear figures (Julius Pacius, ad loc. p. 504).

[c] Analyt. Post. II. xiii. p. 96, b. 19-25: *μετὰ δὲ τοῦτο, λαβόντα τί τὸ γένος, οἷον πότερον τῶν ποσῶν ἢ τῶν ποιῶν, τὰ ἴδια πάθη θεωρεῖν διὰ τῶν κοινῶν πρώτων. τοῖς γὰρ συντιθεμένοις ἐκ τῶν ἀτόμων* (speciebus infimis) *τὰ συμβαίνοντα ἐκ τῶν ὁρισμῶν ἔσται δῆλα, διὰ τὸ ἀρχὴν εἶναι πάντων τὸν ὁρισμὸν καὶ τὸ ἁπλοῦν, καὶ τοῖς ἁπλοῖς καθ' αὑτὰ ὑπάρχειν τὰ συμβαίνοντα μόνοις, τοῖς δ' ἄλλοις κατ' ἐκεῖνα.*

Themistius illustrates this obscure passage, p. 89. The definitions of *εὐθεῖα γραμμή*, *κεκλασμένη γραμμή*, *περιφερὴς γραμμή*, must each of them contain the definition of *γραμμή*

that logical Division of genera, according to specific differences, can be made serviceable for investigation of essential attributes; that is, it can only be made to demonstrate what is derivative from the essence. We have shown already that it cannot help in demonstrating essence or Definition itself. We learn to marshal in proper order the two constituent elements of our definition, and to attach each specific difference to the genus to which it properly belongs. Thus we must not attempt to distribute the genus animal according to the difference of having the wing divided or undivided: many animals will fall under neither of the two heads; the difference in question belongs to the lower genus winged animal, and distributes the same into two species. The characteristic or specific difference must be enunciated and postulated by itself, and must be attached to its appropriate genus in order to form the definition. It is only by careful attention to the steps of legitimate logical Division that we can make sure of including all the particulars and leaving out none.[a]

Some contemporaries of Aristotle, and among them Speusippus, maintained that it was impossible either to define, or to divide logically, unless you knew all particulars without exception. You cannot (they said) know any one thing, except by knowing its differences from all other things; which would imply that you knew also all these other things.[b] To these reasoners

(= *μῆκος ἁπλατές*), since it is in the Category Ποσόν (*ποσὸν μῆκος ἁπλατές*). But the derivative properties of the circle (*περιφερὴς γραμμή*) are deduced from the definition of a circle, and belong to it in the first instance *quâ περιφερὴς γραμμή*, in a secondary way *quâ γραμμή*.

[a] Analyt. Post. II. xiii. p. 96, b. 25-p. 97, a. 6.

[b] Ibid. p. 97, a. 6-10; Themistius, p. 92. Aristotle does not here expressly name Speusippus, but simply says *φασί τινες*. It is Themistius who names Speusippus; and one of the Scholiasts refers to Eudemus as having expressly indicated Speusippus (Schol. p. 248, a. 24, Br.).

Aristotle replies: It is not necessary to know *all* the differences of every thing; you know a thing as soon as you know its essence, with the properties *per se* which are derivative therefrom. There are many differences not belonging to the essence, but distinguishing from each other two things having the same essence: you may know the thing, without knowing these accidental differences.[a] When you divide a genus into two species, distinguished by one proximate specific difference, such that there cannot be any thing that does not fall under one or other of these *membra condividentia*, and when you have traced the subject investigated under one or other of these members, you can always follow this road until no lower specific difference can be found, and you have then the final essence and definition of the subject; even though you may not know how many *other* subjects each of the two members may include.[b] Thus does Aristotle reply to Speusippus, showing that it is not necessary, for the definition of one thing, that you should know *all* other things. His reply, as in many other cases, is founded on the distinction between the Essential and the Accidental.

To obtain or put together a definition through logical Division, three points are to be attended to.[c] Collect the predicates *in Quid*; range them in the proper order; make sure that there are no more, or that you have collected all. The essential predicates are genera, to be obtained not otherwise than by the method (dialectical)

[a] Analyt. Post. II. xiii. p. 97, a. 12: *πολλαὶ γὰρ διαφοραὶ ὑπάρχουσι τοῖς αὐτοῖς τῷ εἴδει, ἀλλ' οὐ κατ' οὐσίαν οὐδὲ καθ' αὑτά.*

[b] Ibid. a. 18-22: *φανερὸν γὰρ ὅτι ἂν οὕτω βαδίζων ἔλθῃ εἰς ταῦτα ὧν μηκέτι ἐστὶ διαφορά, ἕξει τὸν λόγον τῆς οὐσίας.*

[c] Ibid. a. 23: *εἰς δὲ τὸ κατασκευάζειν ὅρον διὰ διαιρέσεων.* The Scholiast, p. 248, a. 41, explains *κατασκευάζειν* by *εὑρεῖν, συνθεῖναι, ἀποδοῦναι.* He distinguishes it from *ἀποδεικνύναι*; demonstration of the definition being impracticable.

used in concluding accidents. As regards order, you begin with the highest genus, that which is predicable of all the others, while none of these is predicable of it, determining in like fashion the succession of the rest respectively. The collection will be complete, if you divide the highest genus by an exhaustive specific difference, such that every thing must be included in one or other of the two proximate and opposed portions; and then taking the species thus found as your *dividendum*, subdivide it until no lower specific difference can be found, or you obtain from the elements an exact equivalent to the subject.[a]

When the investigation must proceed by getting together a group of similar particulars, you compare them, and note what is the same in all; then turn to another group which are the same *in genere* yet differ *in specie* from the first group, and have a different point of community among themselves. You next compare the point of community among the members of the first group, and that among the members of the second group. If the two points of community can be brought under one rational formula, that will be the definition of the subject; but if, at the end of the process, the distinct points of community are not found resolvable into any final one, this proves that the supposed *definiendum* is not one but two or more.[b] For example, suppose you are investigating, What is the essence or definition of magnanimity? You must study various magnanimous individuals, and note what they have in common *quâ* magnanimous.[c] Thus, Achilles, Ajax,

[a] Analyt. Post. II. xiii. p. 97, a. 23 seq. See Waitz, Comm. p. 418.

[b] Analyt. Post. II. xiii. p. 97, b. 7-15. *πάλιν σκοπεῖν εἰ ταὐτὸν ἕως ἂν εἰς ἕνα ἔλθῃ λόγον· οὗτος γὰρ ἔσται τοῦ πράγματος ὁρισμός. ἐὰν δὲ μὴ βαδίζῃ εἰς ἕνα ἀλλ' εἰς δύο ἢ πλείω, δῆλον ὅτι οὐκ ἂν εἴη ἕν τι εἶναι τὸ ζητούμενον, ἀλλὰ πλείω.*

[c] Ibid. b. 16: *σκεπτέον ἐπί τινων μεγαλοψύχων, οὓς ἴσμεν, τί ἔχουσιν ἐν πάντες ἢ τοιοῦτοι.*

Alkibiades were all magnanimous. Now, that which the three had in common was, that they could not endure to be insulted; on that account Alkibiades went to war with his countrymen, Achilles was angry and stood aloof from the Greeks, Ajax slew himself. But, again, you find two other magnanimous men, Sokrates and Lysander. These two had in common the quality, that they maintained an equal and unshaken temper both in prosperity and adversity. Now when you have got thus far, the question to be examined is, What is the point of identity between the temper that will not endure insult, and the temper that remains undisturbed under all diversities of fortune? If an identity can be found, this will be the essence or definition of magnanimity; to which will belong equanimity as one variety, and intolerance of insult as another. If, on the contrary, no identity can be found, you will then have two distinct mental dispositions, without any common definition.[a]

Every definition must be an universal proposition, applicable, not exclusively to one particular object, but to a class of greater or less extent. The lowest species is easier to define than the higher genus; this is one reason why we must begin with particulars, and ascend to universals. It is in the higher genera that equivocal terms most frequently escape detection.[b] When you

[a] Analyt. Post. II. xiii. p. 97, b. 17-25. *ταῦτα δύο λαβὼν σκοπῶ τί τὸ αὐτὸ ἔχουσιν ἥ τε ἀπάθεια ἡ περὶ τὰς τύχας καὶ ἡ μὴ ὑπομονὴ ἀτιμαζομένων. εἰ δὲ μηδέν, δύο εἴδη ἂν εἴη τῆς μεγαλοψυχίας.*

> Æquam memento rebus in arduis
> Servare mentem: non secus in bonis
> Ab insolenti temperatam
> Lætitiâ.—HORACE, *Ode*, II. 3.

Aristotle says that there will be two species of magnanimity. But surely if the two so-called species connote nothing in common they are not rightly called species, nor is magnanimity rightly called a genus. Equanimity would be distinct from magnanimity; Sokrates and Lysander would not properly be magnanimous but equanimous.

[b] Analyt. Post. II. xiii. p. 97, b. 29: *καὶ γὰρ αἱ ὁμωνυμίαι λανθάνουσι μᾶλλον ἐν τοῖς καθόλου ἢ ἐν τοῖς ἀδιαφόροις.*

are demonstrating, what you have first to attend to is, the completeness of the form of syllogizing: when you are defining, the main requisite is to be perspicuous and intelligible; *i.e.* to avoid equivocal or metaphorical terms.[a] You will best succeed in avoiding them, if you begin with the individuals, or with examples of the lowest species, and then proceed to consider not their resemblances generally, but their resemblances in certain definite ways, as in colour or figure. These more definite resemblances you will note first; upon each you will found a formula of separate definition; after which you will ascend to the more general formula of less definite resemblance common to both. Thus, in regard to the acute or sharp, you will consider the acute in sound, and in other matters (tastes, pains, weapons, angles, &c.), and you will investigate what is the common point of identity characterizing all. Perhaps there may be no such identity; the transfer of the term from one to the other may be only a metaphor: you will thus learn that no common definition is attainable. This is an important lesson; for as we are forbidden to carry on a dialectical debate in metaphorical terms, much more are we forbidden to introduce metaphorical terms in a definition.[b]

[a] Analyt. Post. II. xiii. p. 97, b. 31: *ὥσπερ δὲ ἐν ταῖς ἀποδείξεσι δεῖ τό γε συλλελογίσθαι ὑπάρχειν, οὕτω καὶ ἐν τοῖς ὅροις τὸ σαφές.*

By *τὸ σαφές*, he evidently means the avoidance of equivocal or metaphorical terms, and the adherence to true genera and species. Compare Biese, Die Philosophie des Aristot. pp. 308-310.

[b] Analyt. Post. II. xiii. p. 97, b. 35-39.—(*διαλέγεσθαί φησι, τὸ διαλεκτικῶς ὁμιλεῖν.*—Schol. p. 248, b. 23, Brand.). Aristotle considers it metaphorical when the term *acute* is applied both to a sound and to an angle.

The treatment of this portion of the Aristotelian doctrine by Prantl (Geschichte der Logik, vol. I. ch. iv. pp. 246, 247, 338,) is instructive. He brings out, in peculiar but forcible terms, the idea of "notional causality" which underlies Aristotle's Logic. "So also ist die Definition das Aussprechen *des schöpferischen Wesensbegriffes*. Soweit der schöpferische Wesensbegriff erreicht werden kann, ist durch denselben die begriff-

To obtain and enunciate correctly the problems suitable for discussion in each branch of science, you must have before you tables of dissection and logical division, and take them as guides;[a] beginning with the highest genus and proceeding downward through the successively descending scale of sub-genera and species. If you are studying animals, you first collect the predicates belonging to all animals; you then take the highest subdivision of the genus animal, such as bird, and you collect the predicates belonging to all birds; and so on to the next in the descending scale. You will be able to show cause why any of these predicates must belong to the man Sokrates, or to the horse Bukephalus; because it belongs to the genus animal, which includes man and horse. Animal will be the middle term in the demonstration.[b] This example is taken from the class-terms current in vulgar speech. But you must not confine yourself to these; you must look out for new classes, bound together by the possession of some common attribute, yet not usually talked

liche Causalität erkannt; und die Einsicht in diese *primitive Ursächlichkeit* wird in dem Syllogismus vermittelst des Mittelbegriffes erreicht. Ueber den schöpferischen Wesensbegriff hinauszugehen, ist nicht möglich. Sobald die Definition mehr als eine blosse Namenserklärung ist—und sie muss mehr seyn—erkennt sie den Mittelbegriff als schöpferische Causalität. Die ontologische Bedeutung des Mittelbegriffes ist, dass er schöpferischer Wesensbegriff ist." Rassow (pp. 51, 63, &c.) adopts a like metaphorical phrase:—"Definitionum est, explicare notionem; quæ quidem est *creatrix rerum causa*."

[a] Analyt. Post. II. xiv. p. 98, a. 1. *πρὸς δὲ τὸ ἔχειν τὰ προβλήματα, λέγειν δεῖ τάς τε ἀνατομὰς καὶ τὰς διαιρέσεις, οὕτω δὲ διαλέγειν, ὑποθέμενον τὸ γένος τὸ κοινὸν ἁπάντων.* This is Waitz's text, which differs from Julius Pacius and from Firmin Didot.

Themistius (pp. 94-95) explains *τὰς ἀνατομὰς* to be anatomical drawings or exercises prepared by Aristotle for teaching: *καὶ τὰς ἀνατομὰς ἔχειν δεῖ προχείρως, ὅσαι πεποίηνται Ἀριστοτέλει.*

The collection of Problems or questions for investigation was much prosecuted, not merely by Aristotle but by Theophrastus (Schol. p. 249, a. 12, Br.).

[b] Analyt. Post. II. xiv. p. 98, a. 5-12.

of as classes, and you must see whether other attributes can be found constantly conjoined therewith. Thus you find that all animals having horns, have also a structure of stomach fit for rumination, and teeth upon one jaw only. You know, therefore, what is the cause that oxen and sheep have a structure of stomach fit for rumination. It is because they have horns. Having-horns is the middle term of the demonstration.[a] Cases may also be found in which several objects possess no common nature or attribute to bind them into a class, but are yet linked together, by analogy, in different ways, to one and the same common term.[b] Some predicates will be found to accompany constantly this analogy, or to belong to all the objects *quâ* analogous, just as if they had one and the same class-nature. Demonstration may be applied to these, as to the former cases.

Problems must be considered to be the same, when the middle term of the demonstration is the same for each, or when the middle term in the one is a subordinate or corollary to that in the other. Thus, the cause of echo, the cause of images in a mirror, the cause of the rainbow, all come under the same general head or middle term (refraction), though with a specific difference in each case. Again, when we investigate the problem, Why does the Nile flow with a more powerful current in the last half of the (lunar) month? the reason is that the month is then more wintry. But why *is* the month then more wintry? Because the light of the moon is then diminishing. Here are two middle terms, the one of which depends

[a] Analyt. Post. II. xiv. p. 98, a. 13-19. Aristotle assumes that the material which ought to have served for the upper teeth, is appropriated by Nature for the formation of horns.

[b] Ibid. a. 20-23: ἔτι δ' ἄλλος τρόπος ἐστὶ κατὰ τὸ ἀνάλογον ἐκλέγειν. He gives as examples, σήπιον, ἄκανθα, ὀστοῦν.

upon the other. The problem for investigation is therefore the same in both.[a]

Respecting *Causa* and *Causatum* question may be made whether it is necessary that when the *causatum* exists, the *causa* must exist also? The answer must be in the affirmative, if you include the cause in the definition of *causatum*. Thus, if you include in the definition of a lunar eclipse, the cause thereof, viz., intervention of the earth between moon and sun—then, whenever an eclipse occurs, such intervention must occur also. But it must not be supposed that there is here a perfect reciprocation, and that as the *causatum* is in this case demonstrable from the cause, so there is the like demonstration of the cause from the *causatum*. Such a demonstration is never a demonstration of διότι; it is only a demonstration of ὅτι. The *causatum* is not included in the definition of the cause; if you demonstrate that because the moon is eclipsed, therefore the earth is interposed between the moon and the sun, you prove the fact of the interposition, but you learn nothing about the cause thereof. Again, in a syllogism the middle term is the cause of the conclusion (*i.e.*, it is the reason why the major term is predicated of the minor, which predication *is* the conclusion); and in this sense the cause and *causatum* may sometimes reciprocate, so that either may be proved by means of the other. But the *causatum* here reciprocates with the *causa* only as premiss and conclusion (*i.e.*, we may know either by means of the other), not as cause and effect; the *causatum* is not cause of the *causa* as a fact and reality, as the *causa* is cause of the *causatum*.[b]

[a] Analyt. Post. II. xv. p. 98, a. 24-34. Theophrastus is said to have made collections of "*like problems*," problems of which the solution depended upon the same middle term (Schol. p. 249, a. 11, Brand.).

[b] Analyt. Post. II. xvi. p. 98, a. 35, seq. Themistius, pp. 96-97: οὐ

The question then arises, Can there be more than one cause of the same *causatum?* Is it necessary that the same effect should be produced in all cases by the same cause? In other words, when the same predicate is demonstrated to be true of two distinct minors, may it not be demonstrated in one case by one middle term, and in the other case by a different middle term?[a] Answer: In genuine and proper scientific problems the middle term is the rational account (definition, interpretation) of the major extreme; this middle term therefore, or the cause, must in all cases be one and the same. The demonstration in these cases is derived from the same essence; it is *per se*, not *per accidens*. But there are other problems, not strictly and properly scientific, in which cause and *causatum* are connected merely *per accidens*; the demonstration being operated by a middle term which is not of the essence of the major, but is only a sign or concomitant.[b] According as the terms of the conclusion are related to each other, so also will the middle term be related to both. If the conclusion be equivocal, the middle term will be

γάρ ἐστιν αἴτιον τοῦ τὴν γῆν ἐν μέσῳ εἶναι τὸ τὴν σελήνην ἐκλείπειν, ἀλλὰ μέσον τοῦ συλλογισμοῦ· καὶ τοῦ συμπεράσματος ἴσως αἴτιον, τοῦ πράγματος δὲ οὐδαμῶς. Themistius here speaks with a precision which is not always present to the mind of Aristotle; for he discriminates the cause of *the fact* from the cause of the *affirmed fact* or *conclusion*. M. Barthélemy St. Hilaire says (Plan Général des Derniers Analytiques, p. cxl.):—"Ainsi, la démonstration de l'effet par la cause apprend pourquoi la chose est; la démonstration par l'effet apprend seulement que la chose est. On sait que la terre s'interpose, mais on ne sait pas pourquoi elle s'interpose: et ce qui le montre bien, c'est que l'idée de l'interposition de la terre est indispensable à la définition essentielle de l'éclipse tandis que l'idée de l'éclipse n'a que faire dans la définition de l'interposition. L'interposition de la terre fait donc comprendre l'éclipse; tandis que l'éclipse ne fait pas du tout comprendre l'interposition de la terre."

[a] Analyt. Post. II. xvi. p. 98, b. 25.

[b] Analyt. Post. II. xvii. p. 99, a. 4: *ἔστι δὲ καὶ οὗ αἴτιον καὶ ᾧ σκοπεῖν κατὰ συμβεβηκός· οὐ μὴν δοκεῖ προβλήματα εἶναι.*

"Veluti si probemus grammaticum esse aptum ad ridendum, quia homo est aptus ad ridendum." (Julius Pacius, p. 514.)

equivocal also; if the predicate in the conclusion be in generic relation to the subject, the major also will be in generic relation to the middle. Thus, if you are demonstrating that one triangle is similar to another, and that one colour is similar to another, the word similar in these two cases is not univocal, but equivocal; accordingly, the middle term in the demonstration will also be equivocal. Again, if you are demonstrating that four proportionals will also be proportionals alternately, there will be one cause or middle term, if the subject of the conclusion be lines; another, if the subject be numbers. Yet the middle term or cause in both is the same, in as far as both involve a certain fact of increment.[a]

The major term of the syllogism will in point of extension be larger than any particular minor, but equal or co-extensive with the sum total of the particulars. Thus the predicate deciduous, affirmable of all plants with broad leaves, is greater in extension than the subject vines, also than the subject fig-trees; but it is equal in extension to the sum total of vines and fig-trees (the other particular broad-leaved plant). The middle also, in an universal demonstration, reciprocates with the major, being its definition. Here the true middle or cause of the effect that vines and fig-trees shed their leaves, is not that they are broad-leaved plants, but rather a coagulation of sap or some such fact.[b]

The last chapter of the present treatise is announced by Aristotle as the appendix and completion of his entire theory of Demonstrative Science, contained in the Analytica Priora, which treats of Syllogism, and the Analytica Posteriora, which treats of Demonstration.

[a] Analyt. Post. II. xvii. p. 99, a. 8-16. [b] Ibid. a. 16 seq.

After formally winding up the whole enquiry, he proceeds to ask regarding the *principia* of Demonstrative Science: What are they? How do they become known? What is the mental habit or condition that is cognizant of them?[a]

Aristotle has already laid down that there can be no Demonstration without certain *præcognita* to start from; and that these *præcognita* must, in the last resort, be *principia* undemonstrable, immediately known, and known even more accurately than the conclusions deduced from them. Are they then cognitions, or cognizant habits and possessions, born along with us, and complete from the first? This is impossible (Aristotle declares); we cannot have such valuable and accurate cognitions from the first moments of childhood, and yet not be at all aware of them. They must therefore be acquired; yet how is it possible for us to acquire them?[b] The fact is, that, though we do not from the first possess any such complete and accurate cognitions as these, we have from the first an inborn capacity or potentiality of arriving at them. And something of the

[a] Analyt. Post. II. xix. p. 99, b. 15-19: *περὶ μὲν οὖν συλλογισμοῦ καὶ ἀποδείξεως, τί τε ἑκάτερόν ἐστι καὶ πῶς γίνεται, φανερόν, ἅμα δε καὶ περὶ ἐπιστήμης ἀποδεικτικῆς· ταὐτὸν γάρ ἐστιν. περὶ δὲ τῶν ἀρχῶν, πῶς τε γίνονται γνώριμοι, καὶ τίς ἡ γνωρίζουσα ἕξις, ἐντεῦθέν ἐστι δῆλον προαπορήσασι πρῶτον.*

Bekker and Waitz, in their editions, include all these words in ch. xix.: the older editions placed the words preceding *περὶ δὲ* in ch. xviii. Zabarella observes the transition to a new subject (Comm. ad Analyt. Post. II. ch. xv. p. 640):—"Postremum hoc caput (beginning at *περὶ δὲ*) extra primariam tractationem positum esse manifestum est; quum præcesserit epilogus respondens procœmio quod legitur in initio primi libri Priorum Analyticorum."

[b] Analyt. Post. II. xix. p. 99, b. 25-30: *πότερον οὐκ ἐνοῦσαι αἱ ἕξεις ἐγγίνονται, ἢ ἐνοῦσαι λελήθασιν. εἰ μὲν δὴ ἔχομεν αὐτάς, ἄτοπον· συμβαίνει γὰρ ἀκριβεστέρας ἔχοντας γνώσεις ἀποδείξεως λανθάνειν· εἰ δὲ λαμβάνομεν μὴ ἔχοντες πρότερον, πῶς ἂν γνωρίζοιμεν καὶ μανθάνοιμεν ἐκ μὴ προϋπαρχούσης γνώσεως;* Compare, supra, Analyt. Post. I. iii. p. 72, b. 20-30; Metaphys. A. ix. p. 993, a. 1, with the Comment. of Alexander, p. 96, Bonitz.

same kind belongs to all animals.[a] All of them possess an apprehending and discriminating power born with them, called Sensible Perception; but, though all possess such power, there is this difference, that with some the act of perception dwells for a longer or shorter time in the mind; with others it does not. In animals with whom it does not dwell, there can be no knowledge beyond perception, at least as to all those matters wherein perception is evanescent; but with those that both perceive and retain perceptions in their minds, ulterior knowledge grows up.[b] There are many such retentive animals, and they differ among themselves: with some of them reason or rational notions arise out of the perceptions retained; with others, it is not so. First, out of perception arises memory; next, out of memory of the same often repeated, arises experience, since many remembrances numerically distinct are summed up into one experience. Lastly, out of experience, or out of the universal notion, the *unum et idem* which pervades and characterizes a multitude of particulars, when it has taken rest and root in the mind, there arises the *principium* of art and science: of science, in respect to objects existent; of art, in respect

[a] Analyt. Post. II. xix. p. 99, b. 30: *φανερὸν τοίνυν οὔτ' ἔχειν οἷόν τε, οὔτ' ἀγνοοῦσι καὶ μηδεμίαν ἕχουσιν ἕξιν ἐγγίνεσθαι· ἀνάγκη ἄρα ἔχειν μέν τινα δύναμιν, μὴ τοιαύτην δ' ἔχειν ἡ ἔσται τούτων τιμιωτέρα κατ' ἀκρίβειαν. φαίνεται δὲ τοῦτό γε πᾶσιν ὑπάρχον τοῖς ζῴοις.*

[b] Analyt. Post. II. xix. p. 99, b. 37: *ὅσοις μὲν οὖν μὴ ἐγγίνεται, ἢ ὅλως ἢ περὶ ἃ μὴ ἐγγίνεται, οὐκ ἔστι τούτοις γνῶσις ἔξω τοῦ αἰσθάνεσθαι· ἐν οἷς δ' ἔνεστιν αἰσθανομένοις ἔχειν ἔτι ἐν τῇ ψυχῇ. πολλῶν δὲ τοιούτων γινομένων ἤδη διαφορά τις γίνεται, ὥστε τοῖς μὲν γίνεσθαι λόγον ἐκ τῆς τῶν τοιούτων μνήμης, τοῖς δὲ μή.* Compare Analyt. Poster. I. p. 81, a. 38, seq., where the dependence of Induction on the perceptions of sense is also affirmed. See Themistius, pp. 50-51, ed. Spengel. The first chapter of the Metaphysica (p. 981) contains a striking account of this generation of universal notions from memory and comparison of sensible particulars: *γίνεται δὲ τέχνη, ὅταν ἐκ πολλῶν τῆς ἐμπειρίας ἐννοημάτων μία καθόλου γένηται περὶ τῶν ὁμοίων ὑπόληψις* ("*intellecta similitudo*"). Also in the Physica VII. p. 247, b. 20 (in the Paraphrase of Themistius, as printed in the Berlin edition, at bottom of page): *ἐκ γὰρ τῆς κατὰ μέρος ἐμπειρίας τὴν καθόλου λαμβάνομεν ἐπιστήμην.*

to things generable.[a] And thus these mental habits or acquirements neither exist in our minds determined from the beginning, nor do they spring from other acquirements of greater cognitive efficacy. They spring from sensible perception; and we may illustrate their growth by what happens in the panic of a terrified host, where first one runaway stops in his flight, then a second, then a third, until at last a number docile to command is collected. One characteristic feature of the mind is to be capable of this process.[b]

[a] Analyt. Post. II. xix. p. 100, a. 3-10: *ἐκ μὲν οὖν αἰσθήσεως γίνεται μνήμη, ὥσπερ λέγομεν, ἐκ δὲ μνήμης πολλάκις τοῦ αὐτοῦ γινομένης ἐμπειρία· αἱ γὰρ πολλαὶ μνῆμαι τῷ ἀριθμῷ ἐμπειρία μία ἐστίν. ἐκ δ' ἐμπειρίας, ἢ ἐκ παντὸς ἠρεμήσαντος τοῦ καθόλου ἐν τῇ ψυχῇ, τοῦ ἑνὸς παρὰ τὰ πολλά, ὃ ἂν ἐν ἅπασιν ἓν ἐνῇ ἐκείνοις τὸ αὐτό, τέχνης ἀρχὴ καὶ ἐπιστήμης· ἐὰν μὲν περὶ γένεσιν, τέχνης, ἐὰν δὲ περὶ τὸ ὄν, ἐπιστήμης.*

A theory very analogous to this (respecting the gradual generation of scientific universal notions in the mind out of the particulars of sense) is stated in the Phædon of Plato, ch. xlv. p. 96, B., where Sokrates reckons up the unsuccessful tentatives which he had made in philosophy: *καὶ πότερον τὸ αἷμά ἐστιν ᾧ φρονοῦμεν, ἢ ὁ ἀήρ, ἢ τὸ πῦρ, ἢ τούτων μὲν οὐδέν, ὁ δὲ ἐγκέφαλός ἐστιν ὁ τὰς αἰσθήσεις παρέχων τοῦ ἀκούειν καὶ ὁρᾶν καὶ ὀσφραίνεσθαι, ἐκ τούτων δὲ γίγνοιτο μνήμη καὶ δόξα, ἐκ δὲ μνήμης καὶ δόξης, λαβούσης τὸ ἠρεμεῖν, κατὰ ταῦτα γίγνεσθαι ἐπιστήμην.*

Boethius says, Comm. in Ciceronis Topica, p. 805:—"Plato ideas quasdam esse ponebat, id est, species incorporeas, substantiasque constantes et per se ab aliis naturæ ratione separatas, ut hoc ipsum *homo*, quibus participantes cæteræ res homines vel animalia fierent. At vero Aristoteles nullas putat extra esse substantias; sed *intellectam similitudinem plurimorum inter se differentium substantialem*, genus putat esse vel speciem. Nam cum homo et equus differunt rationabilitate et irrationabilitate, horum *intellecta similitudo* efficit genus. Ergo communitas quædam et plurimorum inter se differentium similitudo *notio* est; cujus notionis aliud *genus* est, aliud *forma*. Sed quoniam *similium intelligentia* est omnis notio, in rebus vero similibus necessaria est differentiarum discretio, idcirco indiget notio quadam enodatione ac divisione; velut ipse intellectus animalis sibi ipsi non sufficit," &c.

The phrase *intellecta similitudo plurimorum* embodies both Induction and Intellection in one. A like doctrine appears in the obscure passages of Aristotle, De Animâ, III. viii. p. 429, b. 10; also p. 432, a. 3: *ὁ νοῦς, εἶδος εἰδῶν, καὶ ἡ αἴσθησις, εἶδος αἰσθητῶν. ἐπεὶ δὲ οὐδὲ πρᾶγμα οὐθὲν ἐστι παρὰ τὰ μεγέθη, ὡς δοκεῖ, τὰ αἰσθητὰ κεχωρισμένον, ἐν τοῖς εἴδεσι τοῖς αἰσθητοῖς τὰ νοητά ἐστιν.*

[b] Analyt. Post. II. xix. p. 100, a. 10-14: *οὔτε δὴ ἐνυπάρχουσιν ἀφωρισ-*

Aristotle proceeds to repeat the illustration in clearer terms—at least in terms which he thinks clearer.[a] We perceive the particular individual; yet sensible perception is of the universal in the particular (as, for example, when Kallias is before us, we perceive man, not the man Kallias). Now, when one of a set of particulars dwells some time in the mind, first an universal notion arises; next, more particulars are perceived and detained, and universal notions arise upon them more and more comprehensive, until at last we reach the highest stage—the most universal and simple. From Kallias we rise to man; from such and such an animal, to animal *in genere*; from animal *in genere*, still higher, until we reach the highest or indivisible genus.[b] Hence it is plain that the first and highest *principia* can become known to us only by Induction; for it is by

μέναι αἱ ἕξεις, οὔτ' ἀπ' ἄλλων ἕξεων γίνονται γνωριμωτέρων, ἀλλ' ἀπὸ αἰσθήσεως,—ἡ δὲ ψυχὴ ὑπάρχει τοιαύτη οὖσα οἵα δύνασθαι πάσχειν τοῦτο.

The varieties of intellectual *ἕξεις* enumerated by Aristotle in the sixth book of the Nikomachean Ethica, are elucidated by Alexander in his Comment. on the Metaphysica, (A. p. 981) pp. 7, 8, Bonitz. The difference of *ἕξις* and *διάθεσις*, the durable condition as contrasted with the transient, is noted in Categoriæ. pp. 8, 9. See also Eth. Nikom. II. i. ii. pp. 1103, 4.

[a] Analyt. Post. II. xix. p. 100, a. 14: *ὃ δ' ἐλέχθη μὲν πάλαι, οὐ σαφῶς δὲ ἐλέχθη, πάλιν εἴπωμεν.*

Waitz supposes that Aristotle here refers to a passage in the first book of the Analytica Posteriora, c. xxxi. p. 87, b. 30. M. Barthélemy St. Hilaire thinks (p. 290) that reference is intended to an earlier sentence of this same chapter. Neither of these suppositions seems to suit (least of all the last) with the meaning of *πάλαι*. But whichever be meant, Aristotle has not done much *to clear up* what was obscure in the antecedent statements.

[b] Analyt. Post. II. xix. p. 100, a. 15: *στάντος γὰρ τῶν ἀδιαφόρων ἑνός, πρῶτον μὲν ἐν τῇ ψυχῇ καθόλου (καὶ γὰρ αἰσθάνεται μὲν τὸ καθ' ἕκαστον, ἡ δ' αἴσθησις τοῦ καθόλου ἐστίν, οἷον ἀνθρώπου, ἀλλ' οὐ Καλλίου ἀνθρώπου) πάλιν δ' ἐν τούτοις ἵσταται, ἕως ἂν τὰ ἀμερῆ στῇ καὶ τὰ καθόλου, οἷον τοιονδὶ ζῷον, ἕως ζῷον καὶ ἐν τούτῳ ὡσαύτως.*

These words are obscure: *τὰ ἀμερῆ* must mean the highest genera; indivisible, *i. e.*, being a *minimum* in respect of *comprehension*. Instead of *τὰ καθόλου*, we might have expected *τὰ μάλιστα καθόλου*, or, perhaps, that *καὶ* should be omitted. Trendelenburg comments at length on this passage, Arist. De Animâ Comment. pp. 170-174.

this process that sensible perception builds up in us the Universal.[a] Now among those intellective habits or acquirements, whereby we come to apprehend truth, there are some (Science and Noûs) that are uniformly and unerringly true, while others (Opinion and Ratiocination) admit an alternative of falsehood.[b] Comparing Science with Noûs, the latter, and the latter only, is more accurate and unerring than Science. But all Science implies demonstration, and all that we know by Science is conclusions deduced by demonstration.

[a] Analyt. Post. II. xix. p. 100, b. 3: *δῆλον δὴ ὅτι ἡμῖν τὰ πρῶτα ἐπαγωγῇ γνωρίζειν ἀναγκαῖον· καὶ γὰρ καὶ αἴσθησις οὕτω τὸ καθόλου ἐμποιεῖ.* Compare, supra, Analyt. Post. I. xviii. p. 81, b. 1. Some commentators contended that Aristotle did not mean to ascribe an inductive origin to the common Axioms properly so called, but only to the special *principia* belonging to each science. Zabarella refutes this doctrine, and maintains that the Axioms (Dignitates) are derived from Induction (Comm. in Analyt. Post. II. xix. p. 649, ed. Venet., 1617):—"Quum igitur inductio non sit proprie discursus, nec ratio, jure dicit Aristoteles principiorum notitiam non esse cum ratione, quia non ex aliis innotescunt, sed ex seipsis dum per inductionem innotescunt. Propterea in illa propositione, quæ in initio primi libri legitur, sub doctrina discursiva cognitio principiorum non comprehenditur, quia non est dianoëtica. Hoc, quod modo diximus, si nonnulli advertissent, fortasse non negassent principia communia, quæ dicuntur Dignitates, inductione cognosci. Dixerunt enim Aristotelem hic de principiis loquentem sola principia propria considerasse, quæ cum non proprio lumine cognoscantur, inductione innotescunt; at Dignitates (inquiunt) proprio lumine ab intellectu nostro cognoscuntur per solam terminorum intelligentiam, ut quod omne totum majus est suâ parte; hoc enim non magis est evidens sensui in particulari, quam intellectui in universali, proinde inductione non eget. Sed hanc sententiam hic Averroes refutat, dicens hæc quoque inductione cognosci, sed non animadverti nobis tempus hujus inductionis; id enim omnino confitendum est, omnem intellectualem doctrinam à sensu originem ducere, et nihil esse in intellectu quod prius in sensu non fuerit, ut ubique asserit Aristoteles."

To the same purpose Zabarella expresses himself in an earlier portion of his Commentary on the Analyt. Post., where he lays it down that the truth of the proposition, Every whole is greater than its part, is known from antecedent knowledge of particulars by way of Induction. Compare the Scholion of Philoponus, ad Analyt. Post. p. 225, a. 32, Brand., where the same is said about the Axiom, Things equal to the same are equal to each other.

[b] Analyt. Post. II. xix. p. 100, b. 5: *ἐπεὶ δὲ τῶν περὶ τὴν διάνοιαν ἕξεων, αἷς ἀληθεύομεν, αἱ μὲν ἀεὶ ἀληθεῖς εἰσίν, αἱ δὲ ἐπιδέχονται τὸ ψεῦδος,* &c.

We have already said that the *principia* of these demonstrations cannot be themselves demonstrated, and therefore cannot be known by Science; we have also said that they must be known more accurately than the conclusions. How then can these *principia* themselves be known? They can be known only by Noûs, and from particulars. It is from the *principia* known by Noûs, with the maximum of accuracy, that Science demonstrates her conclusions. Noûs is the great *principium* of Science.[a]

The manner in which Aristotle here describes how the *principia* of Syllogism become known to the mind deserves particular attention. The march up to *principia* is not only different from, but the reverse of, the march down from *principia*; like the athlete who runs first to the end of the stadium, and then back.[b] Generalizing or universalizing is an acquired intellectual habit or permanent endowment; growing out of numerous particular acts or judgments of sense, remembered, compared, and coalescing into one mental group through associating resemblance. As the ethical, moral, practical habits, are acquirements growing out of a repetition of particular acts, so also the intellectual, theorizing habits are mental results generated by a multitude of particular judgments of sense, retained and compared, so as to imprint upon the mind a lasting stamp of some identity common to all. The Universal (*notius naturâ*) is thus generated in the mind by a process of Induction out of particulars which are *notiora nobis*; the potentiality of this process, together with sense and memory, is all that is innate or connatural.

The *principia*, from which the conclusions of Syllogism

[a] Analyt. Post. II. xix. fin. p. 100, b.
[b] Aristot. Eth. Nikom. I. iv. p. 1095, b. 1.

are deduced, being thus obtained by Induction, are, in Aristotle's view, appreciated by, or correlated with, the infallible and unerring Noûs or Intellect.[a] He conceives repeated and uncontradicted Induction as carrying with it the maximum of certainty and necessity: the syllogistic deductions constituting Science he regards as also certain; but their certainty is only derivative, and the *principia* from which they flow he ranks still higher, as being still more certain.[b] Both the one and the other he pointedly contrasts with Opinion and Calculation, which he declares to be liable to error.

Aristotle had inherited from Plato this doctrine of an infallible Noûs or Intellect, enjoying complete immunity from error. But, instead of connecting it (as Plato had done) with reminiscences of an anterior life among the Ideas, he assigned to it a position as terminus and correlate to the process of Induction.[c] The like postulate

[a] The passages respecting *ἀρχαὶ* or *principia*, in the Nikomachean Ethica (especially Books I. and VI.), are instructive as to Aristotle's views. The *principia* are universal notions and propositions, not starting up ready-made nor as original promptings of the intellect, but gradually built up out of the particulars of sense and Induction, and repeated particular acts. They are judged and sanctioned by Noûs or Intellect, but it requires much care to define them well. They belong to the *ὅτι*, while demonstration belongs to the *διότι*. Eth. Nik. I. vii. p. 1098, a. 33: *οὐκ ἀπαιτητέον δ' οὐδὲ τὴν αἰτίαν ἐν ἅπασιν ὁμοίως, ἀλλ' ἱκανὸν ἔν τισι τὸ ὅτι δειχθῆναι καλῶς, οἷον καὶ περὶ τὰς ἀρχάς· τὸ δ' ὅτι πρῶτον καὶ ἀρχή. τῶν ἀρχῶν δ' αἱ μὲν ἐπαγωγῇ θεωροῦνται, αἱ δ' αἰσθήσει, αἱ δ' ἐθισμῷ τινι, καὶ ἄλλαι δ' ἀλλῶς. μετιέναι δὲ πειρατέον ἑκάστας ᾗ πεφύκασιν, καὶ σπουδαστέον ὅπως ὁρισθῶσι καλῶς· μεγάλην γὰρ ἔχουσι ῥοπὴν πρὸς τὰ ἑπόμενα.*

Compare Eth. Nik. VI. iii. p. 1139, b. 25, where the Analytica is cited by name—*ἡ μὲν δὴ ἐπαγωγὴ ἀρχή ἐστι καὶ τοῦ καθόλου, ὁ δὲ συλλογισμὸς ἐκ τῶν καθόλου· εἰσὶν ἄρα ἀρχαὶ ἐξ ὧν ὁ συλλογισμός, ὧν οὐκ ἔστι συλλογισμός· ἐπαγωγὴ ἄρα.*—ib. p. 1141, a. 7: *λείπεται νοῦν εἶναι τῶν ἀρχῶν.*—p. 1142, a. 25: *ὁ μὲν γὰρ νοῦς τῶν ὅρων, ὧν οὐκ ἔστι λόγος.*—p. 1143, b. 1.

[b] Analyt. Post. I. ii. p. 72, a. 37: *τὸν δὲ μέλλοντα ἕξειν τὴν ἐπιστήμην τὴν δι' ἀποδείξεως οὐ μόνον δεῖ τὰς ἀρχὰς γνωρίζειν καὶ μᾶλλον αὐταῖς πιστεύειν ἢ τῷ δεικνυμένῳ, ἀλλὰ μηδ' ἄλλο αὐτῷ πιστότερον εἶναι μηδὲ γνωριμώτερον τῶν ἀντικειμένων ταῖς ἀρχαῖς, ἐξ ὧν ἔσται συλλογισμὸς ὁ τῆς ἐναντίας ἀπάτης, εἴπερ δεῖ τὸν ἐπιστάμενον ἁπλῶς ἀμετάπειστον εἶναι.*

[c] Ibid. iii. p. 72, b. 20-30. *καὶ οὐ μόνον ἐπιστήμην ἀλλὰ καὶ ἀρχὴν ἐπι-*

and pretension passed afterwards to the Stoics, and various other philosophical sects: they could not be satisfied without finding infallibility somewhere. It was against this pretension that the Academics and Sceptics entered their protest; contending, on grounds sometimes sophistical but often very forcible, that it was impossible to escape from the region of fallibility, and that no criterion of truth, at once universal and imperative, could be set up.

It is to be regretted that Aristotle should have contented himself with proclaiming this Inductive process as an ideal, culminating in the infallible Noûs; and that he should only have superficially noticed those conditions under which it must be conducted in reality, in order to avoid erroneous or uncertified results. This is a deficiency however which has remained unsupplied until the present century.*

στήμης εἶναί τινά φαμεν, ᾗ τοὺς ὅρους γνωρίζομεν.

Themistius, p. 14: *ὧν δὴ ἄρχει πάλιν ὁ νοῦς ᾧ τοὺς ὅρους θηρεύομεν, ἐξ ὧν συγκεῖται τὰ ἀξιώματα.*

The Paraphrase of Themistius (pp. 100-104) is clear and instructive, where he amplifies the last chapter, and explains Noûs as the generalizing or universalizing aptitude of the soul, growing up gradually out of the particulars furnished by Sense and Induction.

* Sir W. Hamilton, Lectures on Logic, Vol. III. Lect. xix. p. 380, says: —"In regard to simple syllogisms, it was an original dogma of the Platonic School, and an early dogma of the Peripatetic, that philosophy (science strictly so-called) was only conversant with, and was exclusively contained in, universals; and the doctrine of Aristotle, which taught that all our general knowledge is only an induction from an observation of particulars, was too easily forgotten or perverted by his followers. It thus obtained almost the force of an acknowledged principle, that everything to be known must be known under some general form or notion. Hence the exaggerated importance attributed to definition and deductions, it not being considered that we only take out of a general notion what we had previously placed therein, and that the amplification of our knowledge is not to be sought for from above but from below,—not from speculation about abstract generalities, but from the observation of concrete particulars. But however erroneous and irrational, the persuasion had its day and influence; and it perhaps determined, as one of its effects, the total neglect of one half, and that not the least important half, of the reasoning process. For while men thought only

of looking upward to the more extensive notions, as the only objects and the only media of science, they took little heed of the more comprehensive notions, and absolutely contemned individuals, as objects which could neither be scientifically known in themselves nor supply the conditions of scientifically knowing aught besides. The Logic of Comprehension and of Induction was therefore neglected or ignored,—the Logic of Extension and Deduction exclusively cultivated, as alone affording the rules by which we might evolve higher notions into their subordinate concepts."

(Hamilton, in this passage, considers the Logic of *Induction* to be the same as the Logic of *Comprehension*.)

CHAPTER IX.

TOPICA.

I.

IN treating of the Analytica Posteriora I have already adverted, in the way of contrast, to the Topica; and, in now approaching the latter work, I must again bring the same contrast before the mind of the reader.

The treatise called Topica (including that which bears the separate title De Sophisticis Elenchis, but which is properly its Ninth or last Book, winding up with a brief but memorable recapitulation of the Analytica and Topica considered as one scheme) is of considerable length, longer than the Prior and Posterior Analytics taken together. It contains both a theory and precepts of Dialectic; also, an analysis of the process called by Aristotle Sophistical Refutation, with advice how to resist or neutralize it.

All through the works of Aristotle, there is nothing which he so directly and emphatically asserts to be his own original performance, as the design and execution of the Topica: *i. e.*, the deduction of Dialectic and Sophistic from the general theory of Syllogism. He had to begin from the beginning, without any model to copy or any predecessor to build upon: and in every sort of work, he observes justly, the first or initial stages are the hardest.[a] In regard to

[a] Aristot. Sophist. Elench. xxxiv. p. 183, b. 22: *μέγιστον γὰρ ἴσως ἀρχὴ παντός, ὥσπερ λέγεται· διὸ καὶ χαλεπώτατον. ὅσῳ γὰρ κράτιστον τῇ δυνάμει, τοσούτῳ μικρότατον ὂν τῷ μεγέθει χαλεπώτατόν ἐστιν ὀφθῆναι.*

Rhetoric much had been done before him; there were not only masters who taught it, but writers who theorized well or ill, and laid down precepts about it; so that, in his treatise on that subject, he had only to enlarge and improve upon pre-existing suggestions. But in regard to Dialectic as he conceives it—in its contrast with Demonstration and Science on the one hand, and in its analogy or kinship with Rhetoric on the other—nothing whatever had been done. There were, indeed, teachers of contentious dialogue, as well as of Rhetoric;[a] but these teachers could do nothing better than recommend to their students dialogues or orations ready made, to be learnt by heart. Such a mode of teaching (he says), though speedy, was altogether unsystematic. The student acquired no knowledge of the art, being furnished only with specimens of art-results. It was as if a master, professing to communicate the art of making the feet comfortable, taught nothing about leather-cutting or shoe-making, but furnished his pupils with different varieties of ready-made shoes; thus supplying what they wanted for the protection of the feet, but not imparting to them any power of providing such protection for themselves.[b] "In regard to the process of syllogizing (says Aristotle, including both Analytic and Dialectic) I found positively nothing said before me: I had to work it out for myself by long and laborious research."[c]

[a] Sophist. Elench. xxxiv. p. 183, b. 34: *ταύτης δὲ τῆς πραγματείας οὐ τὸ μὲν ἦν τὸ δ' οὐκ ἦν προεξειργασμένον, ἀλλ' οὐδὲν παντελῶς ὑπῆρχεν. καὶ γὰρ τῶν περὶ τοὺς ἐριστικοὺς λόγους μισθαρνούντων ὁμοία τις ἦν ἡ παίδευσις τῇ Γοργίου πραγματείᾳ· λόγους γὰρ οἱ μὲν ῥητορικοὺς οἱ δὲ ἐρωτητικοὺς ἐδίδοσαν ἐκμανθάνειν, εἰς οὓς πλειστάκις ἐμπίπτειν ὠήθησαν ἑκάτεροι τοὺς ἀλλήλων λόγους.*

[b] Ibid. xxxiv. p. 184, a. 2.

[c] Ibid. a. 7: *καὶ περὶ μὲν τῶν ῥητορικῶν ὑπῆρχε πολλὰ καὶ παλαιὰ τὰ λεγόμενα, περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἴχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἢ τριβῇ ζητοῦντες πολὺν χρόνον ἐπονοῦμεν.*

This is one of the few passages, throughout the philosopher's varied and multitudinous works, in which he alludes to his own speciality of method. It is all the more interesting on that account. If we turn back to Sokrates and Plato, we shall understand better what the innovation operated by Aristotle was; what the position of Dialectic had been before his time, and what it became afterwards.

In the minds of Sokrates and Plato, the great antithesis was between Dialectic and Rhetoric—interchange of short question and answer before a select audience, as contrasted with long continuous speech addressed to a miscellaneous crowd with known established sentiments and opinions, in the view of persuading them on some given interesting point requiring decision. In such Dialectic Sokrates was a consummate master; passing most of his long life in the market-place and palæstra, and courting disputation with every one. He made formal profession of ignorance, disclaimed all power of teaching, wrote nothing at all, and applied himself almost exclusively to the cross-examining *Elenchus*, by which he exposed and humiliated the ablest men not less than the vulgar. Plato, along with the other companions of Sokrates, imbibed the Dialectic of his master, and gave perpetuity to it in those inimitable dialogues which are still preserved to us from his pen. He composed nothing but dialogues; thus giving expression to his own thoughts only under borrowed names, and introducing that of Sokrates very generally as chief spokesman. But Plato, though in some dialogues he puts into the mouth of his spokesman the genuine Sokratic disclaimer of all power and all purpose of teaching, yet does not do this in all. He sometimes assumes the didactic function; though he still adheres to the form of dialogue, even when it has

become inconvenient and unsuitable. In the Platonic Republic Sokrates is made to alternate his own peculiar vein of cross-examination with a vein of dogmatic exposition not his own; but both one and the other in the same style of short question and answer. In the Leges becomes still more manifest the inconvenience of combining the substance of dogmatic exposition with the form of dialogue: the same remark may also be made about the Sophistes and Politicus; in which two dialogues, moreover, the didactic process is exhibited purely and exclusively as a logical partition, systematically conducted, of a genus into its component species. Long-continued speech, always depreciated by Plato in its rhetorical manifestations, is foreign to his genius even for purposes of philosophy: the very lecture on cosmogony which he assigns to Timæus, and the mythical narrative (unfinished) delivered by Kritias, are brought into something like the form of dialogue by a prefatory colloquy specially adapted for that end.

It thus appears that, while in Sokrates the dialectic process is exhibited in its maximum of perfection, but disconnected altogether from the didactic, which is left unnoticed,—in Plato the didactic process is recognized and postulated, but is nevertheless confounded with or absorbed into the dialectic, and admitted only as one particular, ulterior, phase and manifestation of it. At the same time, while both Sokrates and Plato bring out forcibly the side of antithesis between Rhetoric and Dialectic, they omit entirely to notice the side of analogy or parallelism between them. On both these points Aristotle has corrected the confusion, and improved upon the discrimination, of his two predecessors. He has pointedly distinguished the dialectic process from the didactic; and he has gone a step farther,

furnishing a separate theory and precepts both for the one and for the other. Again, he has indicated the important feature of analogy between Dialectic and Rhetoric, in which same feature both of them contrast with Didactic—the point not seized either by Sokrates or by Plato.

Plato, in his Sokratic dialogues or dialogues of Search, has given admirable illustrative specimens of that which Sokrates understood and practised orally as Dialectic. Aristotle, in his Topica, has in his usual vein of philosophy theorized on this practice as an art. He had himself composed dialogues, which seem, as far as we can judge from indirect and fragmentary evidence, to have been Ciceronian or rhetorical colloquies — a long pleading *pro* followed by a long pleading *con*, rather than examples of Sokratic brachylogy and cross-examination. But his theory given in the Topica applies to genuine Sokratic fencing, not to the Ciceronian alternation of set speeches. He disallows the conception of Plato, that Dialectic is a process including not merely dispute but all full and efficacious employment of general terms and ideas for purposes of teaching: he treats this latter as a province by itself, under the head of Analytic; and devotes the Topica to the explanation of argumentative debate, pure and simple. He takes his departure from the Syllogism, as the type of deductive reasoning generally; the conditions under which syllogistic reasoning is valid and legitimate, having been already explained in his treatise called Analytica Priora. So obtained, and regulated by those conditions, the Syllogism may be applied to one or other of two distinct and independent purposes:— (1) To Demonstration or Scientific Teaching, which we have had before us in the last two chapters, com-

menting on the Analytica Posteriora; (2) To Dialectic or Argumentative Debate, which we are now about to enter on in the Topica.

The Dialectic Syllogism, explained in the Topica, has some points in common with the Demonstrative Syllogism, treated in the Analytica Posteriora. In both, the formal conditions are the same, and the conclusion will certainly be true, if the premisses are true; in both, the axioms of deductive reasoning are assumed, namely, the maxims of Contradiction and Excluded Middle. But, in regard to the subject-matter, the differences between them are important. The Demonstrative Syllogism applies only to a small number of select sciences, each having special *principia* of its own, or primary, undemonstrable truths, obtained in the first instance by induction from particulars. The premisses being thus incontrovertibly certain, the conclusions deduced are not less certain; there is no necessary place for conflicting arguments or counter-syllogisms, although in particular cases paralogisms may be committed, and erroneous propositions or majors for syllogism may be assumed. On the contrary, the Dialectic Syllogism applies to all matters without exception; the premisses on which it proceeds are neither obtained by induction, nor incontrovertibly certain, but are borrowed from some one among the varieties of accredited or authoritative opinion. They may be opinions held by the multitude of any particular country, or by an intelligent majority, or by a particular school of philosophers or wise individuals, or from transmission as a current proverb or dictum of some ancient poet or seer. From any one of these sources the dialectician may borrow premisses for syllogizing. But it often happens that the premisses which they supply are disparate, or in direct contradiction to each

other; and none of them is entitled to be considered as final or peremptory against the rest. Accordingly, it is an essential feature of Dialectic as well as of Rhetoric that they furnish means of establishing conclusions contrary or contradictory, by syllogisms equally legitimate.[a] The dialectic procedure is from its beginning intrinsically contentious, implying a debate between two persons, one of whom sets up a thesis to defend, while the other impugns it by interrogation: the assailant has gained his point, if he can reduce the defendant to the necessity of contradicting himself; while the defendant on his side has to avoid giving any responses which may drive him to the necessity of such contradiction.

Aristotle takes great pains to enforce the separation both of Dialectic and Rhetoric from Science or Instruction with its purpose of teaching or learning. He disapproves of those (seemingly intending Plato) who seek to confound the two. Dialectic and Rhetoric (he says) have for their province words and discourse, not facts or things: they are not scientific or didactic processes, but powers or accomplishments of discourse; and whoever tries to convert them into means of teaching or learning particular subjects, abolishes their characteristic feature and restricts their universality of application.[b] Both of them deal not with scientific

[a] Aristot. Rhetoric. I. i. p. 1355, a. 29: *ἔτι δὲ τἀναντία δεῖ δύνασθαι πείθειν, καθάπερ καὶ ἐν τοῖς συλλογισμοῖς, οὐχ ὅπως ἀμφότερα πράττωμεν, (οὐ γὰρ δεῖ τὰ φαῦλα πείθειν), ἀλλ' ἵνα μήτε λανθάνῃ πῶς ἔχει, καὶ ὅπως ἄλλου χρωμένου τοῖς λόγοις μὴ δικαίως αὐτοὶ λύειν ἔχωμεν. τῶν μὲν οὖν ἄλλων τεχνῶν οὐδεμία τἀναντία συλλογίζεται· ἡ δὲ διαλεκτικὴ καὶ ἡ ῥητορικὴ μόναι τοῦτο ποιοῦσιν· ὁμοίως γάρ εἰσιν ἀμφότεραι τῶν ἐναντίων.*

[b] Ibid. iv. 2, p. 1359, b. 12: *ὅσῳ δ' ἄν τις ἢ τὴν διαλεκτικὴν ἢ ταύτην (τὴν ῥητορικὴν) μὴ καθάπερ ἂν δυνάμεις, ἀλλ' ἐπιστήμας, πειρᾶται κατασκευάζειν, λήσεται τὴν φύσιν αὐτῶν ἀφανίσας, τῷ μεταβαίνειν ἐπισκευάζων εἰς ἐπιστήμας ὑποκειμένων τινῶν πραγμάτων, ἀλλὰ μὴ μόνον λόγων.*

facts, but with the sum total of accredited opinions, though each for its own purpose: both of them lay hold of any one among the incoherent aggregate of accepted generalities, suitable for the occasion; the Dialectician trying to force his opponent into an inconsistency, the Rhetor trying to persuade his auditors into a favourable decision. Neither the one nor the other goes deeper than opinion for his premisses, nor concerns himself about establishing by induction primary or special *principia*, such as may serve for a basis of demonstration.

In every society there are various floating opinions and beliefs, each carrying with it a certain measure of authority, often inconsistent with each other, not the same in different societies, nor always the same even in the same society. Each youthful citizen, as he grows to manhood, imbibes these opinions and beliefs insensibly and without special or professional teaching.* The stock of opinions thus transmitted would not be identical even at Athens and Sparta: the difference would be still greater, if we compared Athens with Rome, Alexandria, or Jerusalem. Such opinions all carry with them more or less of authority, and it is from them that the reasonings of common life, among unscientific men, are supplied. The practice of dialectical discussion, prevalent in Athens during and before the time of Aristotle, was only a more elaborate, improved, and ingenious exhibition of this common talk; proceeding on the same premisses, but bringing them together from a greater variety of sources, handling them more cleverly, and having for its purpose to convict an opponent of inconsistency. The dialecticians

* For an acute and interesting description of this unsystematic transmission of opinions, see, in the Protagoras of Plato, the speech put into the mouth of Protagoras, pp. 323-325. See also 'Plato and the Other Companions of Sokrates,' Vol. II. ch. xxi. p. 45, seq.

dwelt exclusively in the region of these received opinions; and the purpose of their debates was to prove inconsistency, or to repel the proof of inconsistency, between one opinion and another.

This dialectic debate, which Aristotle found current at Athens, he tries in the Topica to define and reduce to system. The dialectician must employ Syllogism; and we are first taught to distinguish the syllogism that he employs from others. The Dialectic syllogism is discriminated on one side from the Demonstrative, on the other from the Eristic (or litigious); also from the scientific Paralogism or Pseudographeme. This discrimination is founded on the nature of the evidence belonging to the premisses. The Demonstrative syllogism (which we have already gone through in the Analytica Posteriora) has premisses noway dependent upon opinion: it deduces conclusions from true first principles, obtained by Induction in each science, and different in each different science. The Dialectic syllogism does not aspire to any such evidence, but borrows its premisses from Opinion of some sort; accredited either by numbers, or by wise individuals, or by some other authoritative holding. As this evidence is very inferior to that of the demonstrative syllogism, so again it is superior to that of the third variety—the Eristic syllogism. In this third variety,* the premisses do not rest upon any real opinion, but only on a fallacious appearance or simulation of opinion; insomuch that they are at once detected as false, by any person even of moderate understanding; whereas (according to Aristotle) no real opinion ever carries with it such a merely superficial semblance, or is ever so obviously and palpably false. A syllogism is called Eristic also

* Topic. I. i. p. 100, b. 23: *ἐριστικὸς δ' ἔστι συλλογισμὸς ὁ ἐκ φαινομένων ἐνδόξων, μὴ ὄντων δέ, καὶ ὁ ἐξ ἐνδόξων ἢ φαινομένων ἐνδόξων*

when it is faulty in form, though its premisses may be borrowed from real opinion, or when it is both faulty in form and false in the matter of the premisses. Still a fourth variety of syllogism is the scientific Paralogism: where the premisses are not borrowed from any opinion, real or simulated, but belong properly to the particular science in which they are employed, yet nevertheless are false or erroneous.[a]

Upon the classification of syllogisms here set forth by Aristotle, we may remark that the distinction between the Demonstrative and the Dialectic is true and important; but that between the Dialectic and the Eristic is faint and unimportant; the class called Eristic syllogisms being apparently introduced merely to create a difference, real or supposed, between the Dialectician and the Sophist, and thus to serve as a prelude to the last book of this treatise, entitled Sophistici Elenchi. The class-title Eristic (or litigious) is founded upon a supposition of dishonest intentions on the part of the disputant; but it is unphilosophical to make this the foundation of a class, and to rank the same syllogism in the class, or out of it, according as the intentions of the disputant who employs it are honest or dishonest. Besides, a portion of Aristotle's definition tells us that the Eristic syllogism is one of which the premisses can impose upon no one; being such that a very ordinary man can at once detect their falsity. The dishonest disputant, surely, would argue to little purpose, if he intentionally employed such premisses as these. Lastly, according to another portion of Aristotle's definition,

φαινόμενος. οὐ γὰρ πᾶν τὸ φαινόμενον ἔνδοξον καὶ ἔστιν ἔνδοξον. οὐθὲν γὰρ τῶν λεγομένων ἐνδόξων ἐπιπόλαιον ἔχει παντελῶς τὴν φαντασίαν, καθάπερ περὶ τὰς τῶν ἐριστικῶν λόγων ἀρχὰς συμβέβηκεν ἔχειν· παραχρῆμα γὰρ καὶ ὡς ἐπὶ τὸ πολὺ τοῖς καὶ μικρὰ συνορᾶν δυναμένοις κατάδηλος ἐν αὐτοῖς ἡ τοῦ ψεύδους ἐστὶ φύσις.

[a] Topic. I. i. p. 101, a. 5-17.

every syllogism faulty in form, or yielding no legitimate conclusion at all, will fall under the class Eristic, and this he himself in another place explicitly states;[a] which would imply that the bad syllogism must always emanate from litigious or dishonest intentions. But in defining the Pseudographeme, immediately afterwards, Aristotle does not imply that the false scientific premiss affords presumption of litigious disposition on the part of those who advance it; nor does there seem any greater propriety in throwing all bad dialectic syllogisms under the general head of Eristic.

The dialectician, then, will carry on debate only by means of premisses sustained by real opinion; which not only always carry some authority, but are assumed as being never obviously fallacious; though often inconsistent with each other, and admitting of argumentation *pro* and *con*. These are what Aristotle calls *Endoxa*; opposed to *Adoxa*, or propositions which are discountenanced, or at least not countenanced, by opinion, and to *Paradoxa* (a peculiar variety of *Adoxa*),[b] or propositions which, though having ingenious arguments in their favour, yet are adverse to some proclaimed and wide-spread opinions, and thus have the predominant authority of opinion against them.

Of these three words, *Paradox* is the only one that has obtained a footing in modern languages, thanks to Cicero and the Latin authors. If the word *Endox* had obtained the like footing, we should be able to keep more closely to the thought and views of Aristotle. As it is, we are obliged to translate the Greek *Endoxon* as Probable, and *Adoxon* as Improbable:[c] which, though

[a] Topic. VIII. xii. p. 162, b. 4.

[b] Ibid. I. xi. p. 104, b. 24: *περὶ ὧν λόγον ἔχομεν ἐναντίον ταῖς δόξαις.*

[c] Aristotle gives a double meaning of *ἄδοξον* (Topic. VIII. ix. p. 160, b. 17):—1. That which involves absurd or strange consequences (*ἄτοπα*). 2. That which affords presumption of a

not incorrect, is neither suitable nor exactly coincident. *Probable* corresponds more nearly to what Aristotle (both in this treatise and in the Analytica) announces sometimes as *τὸ ὡς ἐπὶ τὸ πολύ*—that which happens in most cases but not in all, as distinguished from the universal and necessary on one side, and from the purely casual on the other;[a] sometimes, also, as *τὸ εἰκός* or *τὸ σημεῖον*. Now this is a different idea from (though it has a point of analogy with) the *Endoxon:* which is not necessarily true even in part, but may be wholly untrue; which always has some considerations against it, though there may be more in its favour; and which, lastly, may be different, or even opposite, in different ages and different states of society. When Josephus distinguished himself as a disputant in the schools of Jerusalem on points of law and custom,[b] his arguments must have been chiefly borrowed from the *Endoxa* or prevalent opinions of the time and place; but these must have differed widely from the *Endoxa* found and argued upon by the contemporaries of Aristotle at Athens. The *Endoxon* may indeed be rightly called probable, because, whenever a proposition is fortified by a certain body of opinion, Aristotle admits a certain presumption (greater or less) that it is true. But such probability is not essential to the *Endoxon:* it is only an accident or accompaniment (to use the Aristotelian phrase), and by no means an universal accompaniment. The essential feature of the *Endoxon* is, that it has acquired a certain amount of recognition among the mass of opinions and beliefs floating and carrying

bad disposition, such as others will disapprove—*οἷον ὅτι ἡδονὴ τἀγαθὸν καὶ τὸ ἀδικεῖν βέλτιον τοῦ ἀδικεῖσθαι.*

[a] Topic. II. vi. p. 112, b. 1: *ἐπεὶ δὲ τῶν πραγμάτων τὰ μὲν ἐξ ἀνάγκης ἐστί, τὰ δ' ὡς ἐπὶ τὸ πολύ, τὰ δ' ὁπότερ' ἔτυχεν,* &c. Compare also Analyt. Post. I. xxx., et alib.

[b] See Josephus, De Vitâ Suâ, c. ii.

authority at the actual time and place. The English word whereby it is translated ought to express this idea, and nothing more; just as the correlative word Paradox does express its implication, approached from the other side. Unfortunately, in the absence of *Endox*, we have no good word for the purpose.

It is within this wide field of floating opinions that dialectical debate and rhetorical pleading are carried on. Dialectic supposes a questioner or assailant, and a respondent or defendant. The respondent selects and proclaims a problem or thesis, which he undertakes to maintain: the assailant puts to him successive questions, with the view of obtaining concessions which may serve as premisses for a counter-syllogism, of which the conclusion is contradictory or contrary to the thesis itself, or to some other antecedent premiss which the respondent has already conceded. It is the business of the respondent to avoid making any answers which may serve as premisses for such a counter-syllogism. If he succeeds in this, so as not to become implicated in any contradiction with himself, he has baffled his assailant, and gained the victory. There are, however, certain rules and conditions, binding on both parties, under which the debate must be carried on. It is the purpose of the Topica to indicate these rules; and, in accordance therewith, to advise both parties as to the effective conduct of their respective cases—as to the best thrusts and the best mode of parrying. The assailant is supplied with a classified catalogue of materials for questions, and with indications of the weak points which he is to look out for in any new subject which may turn up for debate. He is farther instructed how to shape, marshal, and disguise his questions, in such a way that the respondent may least be able to foresee their ultimate bearing. The respondent, on his side, is told what he

ought to look forward to and guard against. Such is the scope of the present treatise; the entire process being considered in the large and comprehensive spirit customary with Aristotle, and distributed according to the Aristotelian terminology and classification.

It is plain that neither the direct purpose of the debaters, nor the usual result of the debate, is to prove truth or to disprove falsehood. Such may indeed be the result occasionally; but the only certain result is, that an inconsistency is exposed in the respondent's manner of defending his thesis, or that the assailant fails in his purpose of showing up such inconsistency. Whichever way the debate may turn, no certain inference can be drawn as to the thesis itself; not merely as to whether it is true or false, but even as to whether it consists or does not consist with other branches of received opinions. Such being the case, what is the use or value of dialectic debate, or of a methodized procedure for conducting it? Aristotle answers this question, telling us that it is useful for three purposes.[a] First, the debate is a valuable and stimulating mental exercise; and, if a methodized procedure be laid down, both parties will be able to conduct it more easily as well as more efficaciously. Secondly, it is useful for our intercourse with the multitude;[b] for the procedure directs us to note and remember the opinions of the multitude, and such knowledge will facilitate our intercourse with them: we shall converse with them out of their own opinions, which we may thus be able beneficially to modify. Thirdly,

[a] Topic. I. ii. p. 101, a. 26: *ἔστι δὴ πρὸς τρία, πρὸς γυμνασίαν, πρὸς τὰς ἐντεύξεις, πρὸς τὰς κατὰ φιλοσοφίαν ἐπιστήμας.*

[b] Ibid. a. 30: *πρὸς δὲ τὰς ἐντεύξεις, διότι τὰς τῶν πολλῶν κατηριθμημένοι δόξας οὐκ ἐκ τῶν ἀλλοτρίων ἀλλ' ἐκ τῶν οἰκείων δογμάτων ὁμιλήσομεν πρὸς αὐτούς, μεταβιβάζοντες ὅ τι ἂν μὴ καλῶς φαίνωνται λέγειν ἡμῖν.*

dialectic debate has an useful though indirect bearing even upon the processes of science and philosophy, and upon the truths thereby acquired.[a] For it accustoms us to study the difficulties on both sides of every question, and thus assists us in detecting and discriminating truth and falsehood. Moreover, apart from this mode of usefulness, it opens a new road to the scrutiny of the first *principia* of each separate science. These *principia* can never be scrutinized through the truths of the science itself, which presuppose them and are deduced from them. To investigate and verify them, is the appropriate task of First Philosophy. But Dialectic also, carrying investigation as it does everywhere, and familiarized with the received opinions on both sides of every subject, suggests many points of importance in regard to these *principia*.

The three heads just enumerated illustrate the discriminating care of Aristotle. The point of the first head is brought out often in the Platonic Dialogues of Search: the stimulus brought to bear in awakening dormant intellectual power, and in dissipating that false persuasion of knowledge which is the general infirmity of mankind, is frequently declared by Plato to be the most difficult, but the indispensable, operation of the teacher upon his pupil. Under the third head, Aristotle puts this point more justly than Plato, not as a portion of teaching, nor as superseding direct teaching, but as a preliminary thereunto; and it is a habit of his own to prefix this antecedent survey of doubts and difficulties on both sides, as a means of sharpening our insight into the dogmatic exposition which immediately follows.

Under the second head, we find exhibited another characteristic feature of Aristotle's mind—the value

[a] Topic I. ii. p. 101, a 34: *πρὸς δὲ τὰς κατὰ φιλοσοφίαν ἐπιστήμας*, &c.

which he sets upon a copious acquaintance with received opinions, whether correct or erroneous. The philosophers of his day no longer talked publicly in the market-place and with every one indiscriminately, as Sokrates had done: scientific study, and the habit of written compositions naturally conducted them into a life apart, among select companions. Aristotle here indicates that such estrangement from the multitude lessened their means of acting beneficially on the multitude, and in the way of counteraction he prescribes dialectical exercise. His own large and many-sided observation, extending to the most vulgar phenomena, is visible throughout his works, and we know that he drew up a collection of current proverbs.[a]

Again, what we read under the third head shows that, while Aristotle everywhere declares Demonstration and teaching to be a process apart from Dialectic, he at the same time recognizes the legitimate function of the latter, for testing and verifying the *principia* of Demonstration;[b] which *principia* cannot be reached by Demonstration itself, since every demonstration presupposes them. He does not mean that these *principia* can be proved by Dialectic, for Dialectic does not prove any thing; but it is necessary as a test or scrutinizing process to assure us that all the objections capable of being offered against them can be met by sufficient replies. In respect of universal competence and applicability, Dialectic is the counterpart, or rather the tentative companion and adjunct, of what Aristotle calls First Philosophy

[a] Diog. Laert. v. 26. Kephisodorus, the disciple of Isokrates, in defending his master, depreciated this Aristotelian collection; see in Athenæus II. lvi., comparing Schweighäuser's Animadversiones I. p. 406.

[b] Topic. I. ii. p. 101, b. 3: *ἐξεταστικὴ γὰρ οὖσα πρὸς τὰς ἁπασῶν τῶν μεθόδων ἀρχὰς ὁδὸν ἔχει.*

or Ontology; to which last he assigns the cognizance of *principia*, as we shall see when we treat of the Metaphysica.[a] Dialectic (he repeats more than once) is not a definite science or body of doctrine, but, like rhetoric or medicine, a practical art or ability of dealing with the ever varying situations of the dialogue; of imagining and enunciating the question proper for attack, or the answer proper for defence, as the case may be. As in the other arts, its resources are not unlimited. Nor can the dialectician, any more than the rhetor or the physician, always guarantee success. Each of them has an end to be accomplished; and if he employs for its accomplishment the best means that the situation permits, he must be considered a master of his own art and procedure.[b] To detect truth, and to detect what is like truth, belong (in Aristotle's judgment) to the same mental capacity. Mankind have a natural tendency towards truth, and the common opinions therefore are, in most cases, coincident with truth. Accordingly, the man who divines well in regard to verisimilitude, will usually divine well in regard to truth.[c]

The subject-matter of dialectic debate, speaking generally, consists of Propositions and Problems, to be propounded as questions by the assailant and to be admitted or disallowed by the defendant. They will relate either to *Expetenda* and *Fugienda*, or they must bear, at least indirectly, upon some point of scientific

[a] Metaphys. Γ. iii. p. 1005, a. 20-b. 10; Γ. ii. p. 1004, b. 15-30.

[b] Topic. I. iii. p. 101, b. 5: *ἕξομεν δὲ τελέως τὴν μέθοδον, ὅταν ὁμοίως ἔχωμεν ὥσπερ ἐπὶ ῥητορικῆς καὶ ἰατρικῆς καὶ τῶν τοιούτων δυνάμεων. τοῦτο δ' ἐστὶ τὸ ἐκ τῶν ἐνδεχομένων ποιεῖν ἃ προαιρούμεθα. οὔτε γὰρ ὁ ῥητορικὸς ἐκ παντὸς τρόπου πείσει, οὔθ' ὁ ἰατρικὸς ὑγιάσει· ἀλλ' ἐὰν τῶν ἐνδεχομένων μηδὲν παραλίπῃ, ἱκανῶς αὐτὸν ἕξειν τὴν ἐπιστήμην φήσομεν.*

The word *ἐπιστήμην* in the last line is used loosely, since Aristotle, in the Rhetorica (p. 1359, b. 12), explicitly states that Rhetoric and Dialectic are not to be treated as *ἐπιστήμας* but as mere *δυνάμεις*.

[c] Rhetoric. I. i. p. 1355, a. 17.

truth or observed cognition.[a] They will be either ethical, physical, or logical; class-terms which Aristotle declines to define, contenting himself with giving an example to illustrate each of them, while adding that the student should collect other similar examples, and gradually familiarize himself with the full meaning of the general term, through such inductive comparison of particulars.[b]

But it is not every problem coming under one of these three heads that is fit for dialectic debate. If a man propounds as subject for debate, Whether we ought to honour the gods or to love our parents, he deserves punishment instead of refutation: if he selects the question, Whether snow is white or not, he must be supposed deficient in perceptive power.[c] What all persons unanimously believe, is unsuitable:[d] what no one believes is also unsuitable, since it will not be conceded by any respondent. The problem must have some doubts and difficulties, in order to afford scope for discussion; yet it must not be one of which the premisses are far-fetched or recondite, for that goes beyond the limits of dialectic exercise.[e] It ought to be one on

[a] Topic. I. xi. p. 104, b. 2.

[b] Ibid., xiv. p. 105, b. 20-29: *αἱ μὲν γὰρ ἠθικαὶ προτάσεις εἰσίν, αἱ δὲ φυσικαί, αἱ δὲ λογικαί.—παῖαι δ' ἕκασται τῶν προειρημένων, ὁρισμῷ μὲν οὐκ εὐπετὲς ἀποδοῦναι περὶ αὐτῶν, τῇ δὲ διὰ τῆς ἐπαγωγῆς συνηθείᾳ πειρατέον γνωρίζειν ἑκάστην αὐτῶν, κατὰ τὰ προειρημένα παραδείγματα ἐπισκοποῦντα.*

This illustrates Aristotle's view of the process of Induction and its results; the acquisition of the import of a general term, through comparison of numerous particulars comprehended under it.

The term *logical* does not exactly correspond with Aristotle's λογικαί, but on the present occasion no better term presents itself.

[c] Ibid. xi. p. 105, a. 67: *κολάσεως — αἰσθήσεως, δίονται.* Yet he considers the question, Whether we ought rather to obey the laws of the state or the commands of our parents, in case of discrepancy between the two,—as quite fit for debate (xiv. p. 105, b. 22).

[d] Ibid. x. p. 104, a. 5.

[e] Ibid. xi. p. 105, a. 7: *οὐδὲ δὴ ὧν σύνεγγυς ἡ ἀπόδειξις, οὔδ' ὧν λίαν πόρρω· τὰ μὲν γὰρ οὐκ ἔχει ἀπορίαν,*

which opinions are known to be held, both in the affirmative and in the negative; on which either the multitude differ among themselves, the majority being on one side, while yet there is an adverse minority; or some independent authority stands opposed to the multitude, such as a philosopher of eminence, a professional man or artist speaking on his own particular craft, a geometer or a physician on the specialties of his department. Matters such as these are the appropriate subjects for dialectic debate; and new matters akin to them by way of analogy may be imagined and will be perfectly admissible.[a] Even an ingenious paradox or thesis adverse to prevailing opinions may serve the purpose, as likely to obtain countenance from some authority, though as yet we know of none.[b]

These conditions apply both to problems propounded for debate, and to premisses tendered on either side during the discussion. Both the interrogator and the respondent—the former having to put appropriate questions, and the latter to make appropriate answers—must know and keep in mind these varieties of existing opinion among the multitude as well as among the special dissident authorities above indicated. The dialectician ought to collect and catalogue such *Endoxa*, with the opinions analogous to them, out of written treatises

τὰ δὲ πλείον' ἢ κατὰ γυμναστικήν. The loose use of the word *ἀπόδειξις* deserves note here: it is the technical term of the Analyt. Post., denoting that application of the syllogism which contrasts with Dialectic altogether.

Aristotle here means only that problems falling within these limits are the best for dialectic discussion; but, in his suggestions later on, he includes problems for discussion involving the utmost generalities of philosophy. For example, he often adverts to dialectic debate on the Platonic Ideas or Forms (Topic. II. vii. p. 113, a. 25; V. vii. p. 137, b. 7; VI. vi. p. 143, b. 24. Compare also I. xi. p. 104, b. 14.)

[a] Topic. I. x. p. 104, a. 11-37.

[b] Ibid. xi. p. 104, b. 24-28: *ἢ περὶ ὧν λόγον ἔχομεν ἐναντίον ταῖς δόξαις—τοῦτο γάρ, εἰ καί τινι μὴ δοκεῖ, δόξειεν ἂν διὰ τὸ λόγον ἔχειν.*

and elsewhere;[a] distributing them under convenient heads, such as those relating to good and evil generally, and to each special class of good, &c. Aristotle, however, admonishes him that he is debating problems not scientifically, but dialectically; having reference not to truth, but to opinion.[b] If the interrogator were proceeding scientifically and didactically, he would make use of all true and ascertained propositions, whether the respondent conceded them or not, as premisses for his syllogism. But in Dialectic he is dependent on the concession of the respondent, and can construct his syllogisms only from premisses that have been conceded to him.[c] Hence he must keep as closely as he can to opinions carrying extrinsic authority, as being those which the respondent will hesitate to disallow.[d]

Moreover, the form of the interrogation admissible in dialectic debate is peculiar. The respondent is not bound to furnish any information in his answer: he is bound only to admit, or to deny, a proposition tendered to him. You must not ask him, What is the genus of man? You must yourself declare the genus, and ask whether he admits it, in one or other of the two following forms—(1) Is animal the genus of man? (2) Is animal the genus of man, or not? to which the response is an admission or a denial.[e]

[a] Topic. I. xiv. p. 105, b. 1-18. *ἐκλέγειν δὲ χρὴ καὶ ἐκ τῶν γεγραμμένων λόγων.*

[b] Ibid. b. 30: *πρὸς μὲν οὖν φιλοσοφίαν κατ' ἀλήθειαν περὶ αὐτῶν πραγματευτέον, διαλεκτικῶς δὲ πρὸς δόξαν.*

[c] Ibid. VIII. i. p. 155, b. 10: *πρὸς ἕτερον γὰρ πᾶν τὸ τοιοῦτον, τῷ δὲ φιλοσόφῳ καὶ ζητοῦντι καθ' ἑαυτὸν οὐδὲν μέλει, ἐὰν ἀληθῆ μὲν ᾖ καὶ γνώριμα δι' ὧν ὁ συλλογισμός, μὴ θῇ δ' αὐτὰ ὁ ἀποκρινόμενος,* &c.

[d] Ibid. i. p. 156, b. 20: *χρήσιμον δὲ καὶ τὸ ἐπιλέγειν ὅτι σύνηθες καὶ λεγόμενον τὸ τοιοῦτον· ὀκνοῦσι γὰρ κινεῖν τὸ εἰωθός, ἔνστασιν μὴ ἔχοντες.*

[e] Ibid. I. iv. p. 101, b. 30. The first of these two forms Aristotle calls a *πρότασις*, the second he calls a *πρόβλημα*. But this distinction between these two words is not steadily adhered to: it is differently declared in Topic. I. x., xi. p. 104, as Alexander

Dialectic procedure, both of the assailant and of the defendant, has to do with propositions and problems; accordingly, Aristotle introduces a general distribution of propositions under four heads. The predicate must either be Genus, or Proprium, or Accident, of its subject. But the Proprium divides itself again into two. It always reciprocates with, or is co-extensive with, its subject; but sometimes it declares the essence of the subject, sometimes it does not. When it declares the essence of the subject, Aristotle calls it the Definition; when it does not declare the essence of the subject, although reciprocating therewith, he reserves for it the title of Proprium. Every proposition, and every problem, the entire material of Dialectic, will declare one of these four—Proprium, Definition, Genus, or Accident.[a] The Differentia, as being attached to the Genus, is ranked along with the Genus.[b]

The above four general heads include all the Predicables, which were distributed by subsequent logicians (from whom Porphyry borrowed) into five heads instead of four—Genus, Species, Differentia, Proprium, Accident; the Differentia being ranked as a separate item in the quintuple distribution, and the Species substituted in place of the Definition. It is under this quadruple classification that Aristotle intends to consider propositions and problems as matters for dialectic procedure: he will give argumentative suggestions applicable to each of the four successively. It might be

has remarked in the Scholia, p. 258, b. 4, Brand. Compare also De Interpretat. p. 20, b. 26; and Topic. VIII. ii. p. 158, a. 14: *οὐ δοκεῖ δὲ πᾶν τὸ καθόλου διαλεκτικὴ πρότασις εἶναι, οἷον τί ἐστιν ἄνθρωπος, ἢ ποσαχῶς λέγεται τἀγαθόν; ἔστι γὰρ πρότασις διαλεκτικὴ πρὸς ἣν ἔστιν ἀποκρίνασθαι ναὶ ἢ οὔ· πρὸς δὲ τὰς εἰρημένας οὐκ ἔστιν. διὸ οὐ διαλεκτικά ἐστι τὰ τοιαῦτα τῶν ἐρωτημάτων, ἂν μὴ αὐτὸς διορίσας ἢ διελόμενος εἴπῃ.*

[a] Topic. I. iv. p. 101, b. 17-36.

[b] Ibid. b. 18: *τὴν διαφορὰν ὡς οὖσαν γενικὴν ὁμοῦ τῷ γένει τακτέον.*

practicable (he thinks) to range all the four under the single head of Definition; since arguments impugning Genus, Proprium, and Accident, are all of them good also against Definition. But such a simplification would be perplexing and unmanageable in regard to dialectic procedure.[a]

That the quadruple classification is exhaustive, and that every proposition or problem falls under one or other of the four heads, may be shown in two ways. First, by Induction: survey and analyse as many propositions as you will, all without exception will be found to belong to one of the four.[b] Secondly, by the following Deductive proof:—In every proposition the predicate is either co-extensive and reciprocating with the subject, or it is not. If it does reciprocate, it either declares the essence of the subject, or it does not: if the former, it is the Definition; if the latter, it is a Proprium. But, supposing the predicate not to reciprocate with the subject, it will either declare something contained in the Definition, or it will not. If it does contain a part of the Definition, that part must be either a Genus or a Differentia, since these are the constituents of the Definition. If it does not contain any such part, it must be an Accident.[c] Hence it appears

[a] Topic. I. vi. p. 102, b. 27-38. *ἀλλ' οὐ διὰ τοῦτο μίαν ἐπὶ πάντων καθόλου μέθοδον ζητητέον· οὔτε γὰρ ῥᾴδιον εὑρεῖν τοῦτ' ἐστίν, εἴ θ' εὑρεθείη, παντελῶς ἀσαφὴς καὶ δύσχρηστος ἂν εἴη πρὸς τὴν προκειμένην πραγματείαν.*

[b] Ibid. viii. p. 103, b. 3: *μία μὲν πίστις ἡ διὰ τῆς ἐπαγωγῆς· εἰ γάρ τις ἐπισκοποίη ἑκάστην τῶν προτάσεων καὶ τῶν προβλημάτων, φαίνοιτ' ἂν ἢ ἀπὸ τοῦ ὅρου ἢ &c.*

[c] Ibid. b. 6-19: *ἄλλη δὲ πίστις ἡ διὰ συλλογισμοῦ.*

It will be observed that Aristotle here resolves Definition into Genus and Differentiæ—*ἐπειδὴ ὁ ὁρισμὸς ἐκ γένους καὶ διαφορῶν ἐστίν.* Moreover, though he does not recognize Species as a separate head, yet in his definition of Genus he implies Species as known—*γένος ἐστὶ τὸ κατὰ πλειόνων καὶ διαφερόντων τῷ εἴδει ἐν τῷ τί ἐστι κατηγορούμενον* (p. 102, a. 31).

It thus appears that the quintuple classification is the real and logical

that every proposition must belong to one or other of the four, and that the classification is exhaustive.

Moreover, each of the four Predicables must fall under one or other of the ten Categories or Predicaments. If the predicate be either of Genus or Definition, declaring the essence of the subject, it may fall under any one of the ten Categories; if of Proprium or Accident, not declaring essence, it cannot belong to the first Category (*Οὐσία*), but must fall under one of the remaining nine.[a]

The notion of Sameness or Identity occurs so often in dialectic debate, that Aristotle discriminates its three distinct senses or grades: (1) *Numero*; (2) *Specie*; (3) *Genere*. Water from the same spring is only *idem specie*, though the resemblance between two cups of water from the same spring is far greater than that between water from different sources. Even *Idem Numero* has different significations: sometimes there are complete synonyms; sometimes an individual is called by its proprium, sometimes by its peculiar temporary accident.[b]

Having thus classified dialectic propositions, Aristotle proceeds to the combination of propositions, or dialectic discourse and argument. This is of two sorts, either Induction or Syllogism; of both which we have already heard in the Analytica. Induction is declared to be plainer, more persuasive, nearer to sensible experience, and more suitable to the many, than Syllogism; while this latter carries greater compulsion and is more irresistible against professed disputants.[c] A particular example is given to illustrate what Induction is. But we remark that though it is always mentioned

one; but the quadruple may perhaps be more suitable for the Topica, with a view to dialectic procedure, since debates turn upon the attack and defence of a Definition.

[a] Topic. I. ix. p. 103, b. 20-39.

[b] Ibid. vii. p. 103, a. 6-39.

[c] Ibid. xii. p. 105, a. 10-19: *πόσα τῶν λόγων εἴδη τῶν διαλεκτικῶν*, &c.

as an argumentative procedure important and indispensable, yet neither here nor elsewhere does Aristotle go into any discriminative analysis of the conditions under which it is valid, as he does about Syllogism in the Analytica Priora.

What helps are available to give to the dialectician a ready and abundant command of syllogisms? Four distinct helps may be named:[a] (1) He must make a large collection of Propositions; (2) He must study and discriminate the different senses in which the Terms of these propositions are used; (3) He must detect and note Differences; (4) He must investigate Resemblances.

1. About collecting Propositions, Aristotle has already indicated that those wanted are such as declare *Endoxa*, and other modes of thought cognate or analogous to the *Endoxa*:[b] opinions of the many, and opinions of any small sections or individuals carrying authority. All such are to be collected (out of written treatises as well as from personal enquiry); nor are individual philosophers (like Empedokles) to be omitted, since a proposition is likely enough to be conceded when put upon the authority of an illustrious name.[c] If any proposition is currently admitted as true in general or in most cases, it must be tendered with confidence to the respondent as an universal principle; for he will probably grant it, not being at first

[a] Topic. I. xiii. p. 105, a. 21: *τὰ δ' ὄργανα, δι' ὧν εὐπορήσομεν τῶν συλλογισμῶν, ἐστὶ τέτταρα, ἓν μὲν τὸ προτάσεις λαβεῖν, δεύτερον δὲ ποσαχῶς ἕκαστον λέγεται δύνασθαι διελεῖν, τρίτον τὰς διαφορὰς εὑρεῖν, τέταρτον δὲ ἡ τοῦ ὁμοίου σκέψις.*

The term *ὄργανα*, properly signifying *instruments*, appears here by a strained metaphor. It means simply *helps* or *aids*, as may be seen by comparing Top. VIII. xiv. p. 163, b. 9. Waitz says truly (Prolegg. ad Analyt. Post. p. 294): "unde fit, ut *ὄργανα* dicat quæcunque ad aliquam rem faciendam adiumentum afferant."

[b] Topic. I. xiv. p. 105, b. 4: *ἐκλέγειν μὴ μόνον τὰς οὔσας ἐνδόξους, ἀλλὰ καὶ τὰς ὁμοίας ταύταις.*

[c] Ibid. b. 17: *θεὶς γὰρ ἄν τις τὸ ὑπό τινος εἰρημένον ἐνδόξου.*

aware of the exceptions.[a] All propositions must be registered in the most general terms possible, and must then be resolved into their subordinate constituent particulars, as far as the process of subdivision can be carried.[b]

2. The propositions having been got together, they must be examined in order to find out Equivocation or double meaning of terms. There are various ways of going about this task. Sometimes the same predicate is applied to two different subjects, but in different senses; thus, courage and justice are both of them good, but in a different way. Sometimes the same predicate is applied to two different classes of subjects, each admitting of being defined; thus, health is good in itself, and exercise is good as being among those things that promote health.[c] Sometimes the equivocal meaning of a term is perceived by considering its contrary; if we find that it has two or more distinct contraries, we know at once that it has different meanings. Sometimes, though there are not two distinct contraries, yet the mere conjunction of the same adjective with two substantives shows us at once that it cannot mean the same in both[d] (*λευκὴ φωνή*—*λευκὸν χρῶμα*). In one sense, the term may have an assignable contrary, while in another sense it may have no contrary; showing that the two senses are distinct: for example, the pleasure of drinking has for its contrary the pain of thirst; but the pleasure of scientifically contemplating that the diagonal of a square is incommen-

[a] Topic. I. xiv. p. 105, b. 10: *ὅσα ἐπὶ πάντων ἢ τῶν πλείστων φαίνεται, ληπτέον ὡς ἀρχὴν καὶ δοκοῦσαν θέσιν· τιθέασι γὰρ οἱ μὴ συνορῶντες ἐπὶ τίνος οὐχ οὕτως.*

[b] Ibid. b. 31-37: *ληπτέον δ' ὅτι μάλιστα καθόλου πάσας τὰς προτάσεις, καὶ τὴν μίαν πολλὰς ποιητέον—διαιρετέον, ἕως ἂν ἐνδέχηται διαιρεῖν, &c.*

[c] Ibid. xv. p. 106, a. 1-8: *τὸ δὲ ποσαχῶς, πραγματευτέον μὴ μόνον ὅσα λέγεται καθ' ἕτερον τρόπον, ἀλλὰ καὶ τοὺς λόγους αὐτῶν πειρατέον ἀποδιδόναι.*

[d] Ibid. a. 9-35.

surable with the side, has no contrary; hence, we see that pleasure is an equivocal term.[a] In one sense, there may be a term intermediate between the two contraries; in another sense, there may be none; or there may be two distinct intermediate terms for the two distinct senses; or there may be several intermediate terms in one of the senses, and only one or none in the other: in each of these ways the equivocation is revealed.[b] We must look also to the contradictory opposite (of a term), which may perhaps have an obvious equivocation of meaning; thus, *μὴ βλέπειν* means sometimes to be blind, sometimes not to be seeing actually, whence we discover that *βλέπειν* also has the same equivocation.[c] If a positive term is equivocal, we know that the privative term correlating with it must also be equivocal; thus, *τὸ αἰσθάνεσθαι* has a double sense, according as we speak with reference to mind or body; and this will be alike true of the correlating privative — *τὸ ἀναίσθητον εἶναι*.[d] Farther, an equivocal term will have its derivatives equivocal in the same manner; and conversely, if the derivative be equivocal, the radical will be so likewise.[e] The term must also be looked at in reference to the ten Categories: if its meanings fall under more than one Category, we know that it is equivocal.[f] If it comprehends two subjects which are not in the same genus, or in genera not subordinate one to the other, this too will show that it is equivocal.[g] The contrary, also, of the term must be looked at with a view to the same inference.[h]

Again, it will be useful to bring together the same term in two different conjunctions, and to compare

[a] Topic. I. xv. p. 106, a. 36.
[b] Ibid. b. 4.
[c] Ibid. b. 13-20.
[d] Ibid. b. 21-28.
[e] Ibid. b. 28.
[f] Ibid. p. 107, a. 3-17.
[g] Ibid. a. 18.
[h] Ibid. a. 32-35.

the definitions of the two. Define both of them, and then deduct what is peculiar to each *definitum*: if the remainder be different, the term will be equivocal; if the remainder be the same, the term will be univocal. Thus, λευκὸν σῶμα will be defined, a body having such and such a colour; λευκὴ φωνή, a voice easily and distinctly heard: deduct σῶμα from the first definition, and φωνὴ from the second, the remainder will be totally disparate; therefore, the term λευκόν is equivocal.[a] Sometimes, also, the ambiguity may be found in definitions themselves, where the same term is used to explain subjects that are not the same; whether such use is admissible, has to be considered.[b] If the term be univocal, two conjunctions of it may always be compared as to greater or less, or in respect of likeness; whenever this cannot be, the term is equivocal.[c] If, again, the term is used as a differentia for two genera quite distinct and independent of each other, it must be equivocal; for genera that are unconnected and not subordinate one to the other, have their differentiæ also disparate.[d] And, conversely, if the term be such that the differentiæ applied to it are disparate, we may know it to be an equivocal term. The like, if the term be used as a species in some of its conjunctions, and as a differentia in others.[e]

3. Aristotle has thus indicated, at considerable length, the points to be looked for when we are examining whether a term is univocal or equivocal. He is more concise when he touches on the last two out of the four helps (ὄργανα) enumerated for supplying syllogisms when needed,—viz. the study of Differences and of

[a] Topic. I. xv. p. 107, a. 36-b. 3.
[b] Ibid. b. 8.
[c] Ibid. b. 13-18: ὅτι εἰ μὴ συμβληταὶ κατὰ τὸ μᾶλλον ἢ ὁμοίως,—τὸ γὰρ συνώνυμον πᾶν συμβλητόν.
[d] Ibid. b. 19-26.
[e] Ibid. b. 27-37.

Resemblances. In regard to the study of Differences, standing third, while he remarks that, where these are wide and numerous, they are sure without any precept to excite our attention, he advises that we should study the differences of subjects that are nearly allied,—those within the same genus, or comprehended in genera not much removed from one another, such as, the distinction between sensible perception and science. But he goes into no detail.[a]

4. In regard to the study of Resemblances, he inverts the above precept, and directs us to note especially the points of resemblance between subjects of great apparent difference.[b] We must examine what is the quality common to all species of the same genus—man, horse, dog, &c.; for it is in this that they are similar. We may also compare different genera with each other, in respect to the analogies that are to be found in each: *e.g.*, as science is to the cognizable, so is perception to the perceivable; as sight is in the eye, so is intellection in the soul; as *γαλήνη* is in the sea, so is *νηνεμία* in the air.[c]

Such are the four distinct helps, towards facility of syllogizing, enumerated by Aristotle. It will be observed that the third and fourth (study of Resemblances and Differences) bear more upon matters of fact and less upon words; while the second (*τὸ ποσαχῶς*), though doubtless also bearing on matters of fact and deriving from thence its main real worth, yet takes its departure from terms and propositions, and proceeds by comparing multiplied varieties of these in regard to diversity of meaning. Upon this ground it is, apparently, that Aristotle has given so much fuller develop-

[a] Topic. I. xvi. p. 107, b. 39.

[b] Ibid. xvii. p. 108, a. 12: *μάλιστα δ' ἐν τοῖς πολὺ διεστῶσι γυμνάζεσθαι δεῖ· ῥᾷον γὰρ ἐπὶ τῶν λοιπῶν δυνησόμεθα τὰ ὅμοια συνορᾶν.*

[c] Ibid. p. 108, a. 7.

ment to the second head than to the third and fourth; for, in the Topica, he is dealing with propositions and counter-propositions—with opinions and counter-opinions, not with science and truth.

He proceeds to indicate the different ways in which these three helps (the second, third, and fourth) further the purpose of the dialectician—respondent as well as assailant. Unless the different meanings of the term be discriminated, the respondent cannot know clearly what he admits or what he denies; he may be thinking of something different from what the assailant intends, and the syllogisms constructed may turn upon a term only, not upon any reality.[a] The respondent will be able to protect himself better against being driven into contradiction, if he can distinguish the various meanings of the same term; for he will thus know whether the syllogisms brought against him touch the real matter which he has admitted.[b] On the other hand, the assailant will have much facility in driving his opponent into contradiction, if he (the assailant) can distinguish the different meanings of the term, while the respondent cannot do so; in those cases at least where the proposition is true in one sense of the term and false in another.[c] This manner of proceeding, however, is hardly consistent with genuine Dialectic. No dialectician ought ever to found his interrogations and his arguments upon a mere unanalysed term, unless he can find absolutely nothing else to say in the debate.[d]

[a] Topic. I. xviii. p. 108, a. 22.

[b] Ibid. a. 26: *χρήσιμον δὲ καὶ πρὸς τὸ μὴ παραλογισθῆναι καὶ πρὸς τὸ παραλογίσασθαι. εἰδότες γὰρ ποσαχῶς λέγεται οὐ μὴ παραλογισθῶμεν, ἀλλ' εἰδήσομεν ἐὰν μὴ πρὸς τὸ αὐτὸ τὸν λόγον ποιῆται ὁ ἐρωτῶν.*

[c] Ibid. a. 29: *αὐτοί τε ἐρωτῶντες δυνησόμεθα παραλογίσασθαι, ἐὰν μὴ τυγχάνῃ εἰδὼς ὁ ἀποκρινόμενος ποσαχῶς λέγεται· τοῦτο δ' οὐκ ἐπὶ πάντων δυνατόν, ἀλλ' ὅταν ᾖ τῶν πολλαχῶς λεγομένων τὰ μὲν ἀληθῆ, τὰ δὲ ψευδῆ.*

[d] Ibid. a. 34: *διὸ παντελῶς εὐλαβητέον τοῖς διαλεκτικοῖς τὸ τοιοῦτον, τὸ*

The third help (an acquaintance with Differences) will be of much avail on all occasions where we have to syllogize upon Same and Different, and where we wish to ascertain the essence or definition of any thing; for we ascertain this by exclusion of what is foreign thereunto, founded on the appropriate differences in each case.[a]

Lastly, the fourth help (the intelligent survey of Resemblances) serves us in different ways:—(1) Towards the construction of inductive arguments; (2) Towards syllogizing founded upon assumption; (3) Towards the declaration of definitions. As to the inductive argument, it is founded altogether on a repetition of similar particulars, whereby the universal is obtained.[b] As to the syllogizing from an assumption, the knowledge of resemblances is valuable, because we are entitled to assume, as an *Endoxon* or a doctrine conformable to common opinion, that what happens in any one of a string of similar cases will happen also in all the rest. We lay down this as the major proposition of a syllogism; and thus, if we can lay hold of any one similar case, we can draw inference from it to the matter actually in debate.[c] Again, as to the declaration of definitions, when we have once discovered what is the same in all particular cases, we shall have ascertained to what genus the subject before us belongs;[d] for that one of

πρὸς τοὔνομα διαλέγεσθαι, ἐὰν μή τις ἄλλως ἐξαδυνατῇ περὶ τοῦ προκειμένου διαλέγεσθαι.

[a] Topic. I. xviii. p. 108, b. 2.

[b] Ibid. b. 9.

[c] Ibid. b. 12: πρὸς δὲ τοὺς ἐξ ὑποθέσεως συλλογισμούς, διότι ἔνδοξόν ἐστιν, ὡς ποτε ἐφ' ἑνὸς τῶν ὁμοίων ἔχει, οὕτως καὶ ἐπὶ τῶν λοιπῶν· ὥστε πρὸς ὅ τι ἂν αὐτῶν εὐπορῶμεν διαλέγεσθαι, προδιομολογησόμεθα, ὡς ποτε ἐπὶ τούτων ἔχει, οὕτω καὶ ἐπὶ τοῦ προκειμένου ἔχειν. δείξαντες δὲ ἐκεῖνο καὶ το προκείμενον ἐξ ὑποθέσεως δεδειχότες ἐσόμεθα· ὑποθέμενοι γάρ, ὡς ποτε ἐπὶ τούτων ἔχει, οὕτω καὶ ἐπὶ τοῦ προκειμένου ἔχειν, τὴν ἀπόδειξιν πεποιήμεθα. For τὸ ἐξ ὑποθέσεως, compare Topic. III. vi. p. 119, b. 35.

[d] Topic. I. xviii. p. 108, b. 19.

the common predicates which is most of the essence, will be the genus. Even where the two matters compared are more disparate than we can rank in the same genus, the knowledge of resemblances will enable us to discover useful analogies, and thus to obtain a definition at least approximative. Thus, as the point is in a line, so is the unit in numbers; each of them is a *principium*; this, therefore, is a common genus, which will serve as a tolerable definition. Indeed this is the definition of them commonly given by philosophers; who call the unit *principium* of number, and the point *principium* of a line, thus putting one and the other into a genus common to both.[a]

II.

The First Book of the Topica, which we have thus gone through, was entitled by some ancient commentators *τὰ πρὸ τῶν* Τόπων—matters preliminary to the *Loci*. This is quite true, as a description of its contents; for Aristotle in the last words of the book, distinctly announces that he is about to enumerate the *Loci* towards which the four above-mentioned *Organa* will be useful.[b]

Locus (*τόπος*) is a place in which many arguments pertinent to one and the same dialectical purpose, may be found—*sedes argumentorum*. In each *locus*, the arguments contained therein look at the thesis from the same point of view; and the *locus* implies nothing

[a] Topic. I. xviii. p. 108, b. 27: *ὥστε τὸ κοινὸν ἐπὶ πάντων γένος ἀποδίδοντες δόξομεν οὐκ ἀλλοτρίως ὁρίζεσθαι.* It will be recollected that all the work of Dialectic (as Aristotle tells us often) has reference to *δόξα* and not to scientific truth. "We shall *seem to define* not in a manner departing from the reality of the subject" is, therefore, an appropriate dialectic artifice.

[b] Topic. I. xviii. p. 108, b. 32: *οἱ δὲ τόποι πρὸς οὓς χρήσιμα τὰ λεχθέντα οἵδε εἰσίν.*

distinct from the arguments, except this manner of view common to them all. In fact, the metaphor is a convenient one for designating the relation of every Universal generally to its particulars: the Universal is not a new particular, nor any adjunct superimposed upon all its particulars, but simply a *place* in which all known similar particulars may be found grouped together, and in which there is room for an indefinite number of new ones. If we wish to arm the student with a large command of dialectical artifices, we cannot do better than discriminate the various groups of arguments, indicating the point of view common to each group, and the circumstances in which it becomes applicable. By this means, whenever he is called upon to deal with a new debate, he will consider the thesis in reference to each one of these different *loci*, and will be able to apply arguments out of each of them, according as the case may admit.

The four *Helps* (ὄργανα) explained in the last book differ from the *Loci* in being of wider and more undefined bearing: they are directions for preparatory study, rather than for dealing with any particular situation of a given problem; though it must be confessed that, when Aristotle proceeds to specify the manner in which the three last-mentioned helps are useful, he makes considerable approach towards the greater detail and particularization of the *Loci*. In entering now upon these, he reverts to that quadruple classification of propositions and problems (according to the four Predicables), noted at the beginning of the treatise, in which the predicate is either Definition, Proprium, Genus, or Accident, of the subject. He makes a fourfold distribution of *Loci*, according as they bear upon one or other of these four. In the Second and Third Books, we find those which bear upon propositions predicating

Accident; in the Fourth Book, we pass to Genus; in the Fifth, to Proprium; in the Sixth and Seventh, to Definition.

The problem or thesis propounded for debate may have two faults on which it may be impugned: either it may be untrue; or it may be expressed in a way departing from the received phraseology.[a] It will be universal, or particular, or indefinite; and either affirmative or negative; but, in most cases, the respondent propounds for debate an affirmative universal, and not a negative or a particular.[b] Aristotle therefore begins with those *loci* that are useful for refuting an Affirmative Universal; though, in general, the same arguments are available for attack and defence both of the universal and of the particular; for if you can overthrow the particular, you will have overthrown the universal along with it, while if you can defend the universal, this will include the defence of the particular. As the thesis propounded is usually affirmative, the assailant undertakes the negative side or the work of refutation. And this indeed (as Eudemus, the pupil of Aristotle, remarked, after his master[c]) is the principal function and result of dialectic exercise; which refutes much and proves very little, according to the analogy of the Platonic Dialogues of Search.

[a] Topic. II. i. p. 109, a. 27: *διορίσασθαι δὲ δεῖ καὶ τὰς ἁμαρτίας τὰς ἐν τοῖς προβλήμασιν, ὅτι εἰσὶ δίτταί, ἢ τῷ ψεύδεσθαι, ἢ τῷ παραβαίνειν τὴν κειμένην λέξιν.*

Alexander remarks (Schol. p. 264, b. 23, Br.) that *πρόβλημα* here means, not the interrogation, but *τὸ ὡρισμένον ἤδη καὶ κείμενον—οὗ προΐσταταί τις, ὃν ὁ διαλεκτικὸς ἐλέγχειν ἐπιχειρεῖ.*

[b] Topic. II. i. p. 109, a. 8: *διὰ τὸ μᾶλλον τὰς θέσεις κομίζειν ἐν τῷ ὑπάρχειν ἢ μή, τοὺς δὲ διαλεγομένους ἀνασκευάζειν.*

[c] Alexander ap. Schol. p. 264, a. 27, Br.: *ὅτι δὲ οἰκειότερον τῷ διαλεκτικῷ τὸ ἀνασκευάζειν τοῦ κατασκευάζειν, ἐν τῷ πρώτῳ τῶν ἐπιγραφομένων Εὐδημείων Ἀναλυτικῶν (ἐπιγράφεται δὲ αὐτὸ καὶ Εὐδήμου ὑπὲρ τῶν Ἀναλυτικῶν) οὕτως λέγεται, ὅτι ὁ διαλεκτικὸς ἃ μὲν κατασκευάζει μικρά ἐστι, τὸ δὲ πολὺ τῆς δυνάμεως αὐτοῦ πρὸς τὸ ἀναιρεῖν τι ἐστίν.*

Aristotle takes the four heads—Accident, Genus, Proprium, and Definition, in the order here enumerated. The thesis of which the predicate is enunciated as Accident, affirms the least, is easiest to defend, and hardest to upset.[a] When we enunciate Genus or Proprium, we affirm, not merely that the predicate belongs to the subject (which is all that is affirmed in the case of Accident), but, also something more—that it belongs to the subject in a certain manner and relation. And when we enunciate Definition, we affirm all this and something reaching yet farther—that it declares the whole essence of the *definitum*, and is convertible therewith. Accordingly, the thesis of Definition, affirming as it does so very much, presents the most points of attack and is by far the hardest to defend.[b] Next in point of difficulty, for the respondent, comes the Proprium.

Beginning thus with the thesis enunciating Accident, Aristotle enumerates no less than thirty-seven distinct *loci* or argumentative points of view bearing upon it. Most of them suggest modes of assailing the thesis; but there are also occasionally intimations to the respondent how he may best defend himself. In this numerous list there are indeed some items repetitions of each other, or at least not easily distinguishable.[c] As it

[a] Topic. VII. v. p. 155, a. 27: *ῥᾷστον δὲ πάντων κατασκευάσαι τὸ συμβεβηκός—ἀνασκευάζειν δὲ χαλεπώτατον τὸ συμβεβηκός, ὅτι ἐλάχιστα ἐν αὐτῷ δέδοται· οὐ γὰρ προσσημαίνει ἐν τῷ συμβεβηκότι πῶς ὑπάρχει, ὥστ' ἐπὶ μὲν τῶν ἄλλων δειχῶς ἔστιν ἀνελεῖν, ἢ δείξαντα ὅτι οὐχ ὑπάρχει ἢ ὅτι οὐχ οὕτως ὑπάρχει, ἐπὶ δὲ τοῦ συμβεβηκότος οὐκ ἔστιν ἀνελεῖν ἀλλ' ἢ δείξαντα ὅτι οὐχ ὑπάρχει.*

[b] Ibid. a. 3. *πάντων ῥᾷστον ὅρον ἀνασκευάσαι· πλεῖστα γὰρ ἐν αὐτῷ τὰ δεδομένα πολλῶν εἰρημένων.* a. 23: *τῶν δ' ἄλλων τὸ ἴδιον μάλιστα τοιοῦτον.*

[c] Aristotle himself admits the repetition in some cases, Topic. II. ii. p. 110, a. 12: the fourth *locus* is identical substantially with the second *locus*.

Theophrastus distinguished *παράγγελμα* as the general precept, from *τόπος* or *locus*, as any proposition specially applying the precept to a particular case (Schol. p. 264, b. 38).

would be tedious to enumerate them all, I shall select some of the most marked and illustrative.

1. The respondent has enunciated a certain predicate as belonging in the way of accident, to a given subject. Perhaps it may belong to the subject; yet not as accident, but under some one of the other three Predicables. Perhaps he may have enunciated (either by explicit discrimination, or at least by implication contained in his phraseology) the genus as if it were an accident,—an error not unfrequently committed.[a] Thus, if he has said, To be a colour is an accident of white, he has affirmed explicitly the genus as if it were an accident. And he has affirmed the same by implication, if he has said, White (or whiteness) is coloured. For this is a form of words not proper for the affirmation of a genus respecting its species, in which case the genus itself ought to stand as a literal predicate (White is a colour), and not to be replaced by one of its derivatives (White is coloured). Nor can the proposition be intended to be taken as affirming either proprium or definition; for in both these the predicate would reciprocate and be co-extensive with the subject, whereas in the present case there are obviously many other subjects of which it may be predicated that they are coloured.[b] In saying, White is coloured, the respondent cannot mean to affirm either genus, proprium, or definition; therefore he must mean to affirm *accident*. The assailant will show that this is erroneous.

[a] Topic. II. ii. p. 109, a. 34: *εἷς μὲν δὴ τόπος τὸ ἐπιβλέπειν εἰ τὸ κατ' ἄλλον τινὰ τρόπον ὑπάρχον ὡς συμβεβηκὸς ἀποδέδωκεν. ἁμαρτάνεται δὲ μάλιστα τοῦτο περὶ τὰ γένη, οἷον εἴ τις τῷ λευκῷ φαίη συμβεβηκέναι χρώματι εἶναι· οὐ γὰρ συμβέβηκε τῷ λευκῷ χρώματι εἶναι, ἀλλὰ γένος αὐτοῦ τὸ χρῶμά ἐστιν.*

[b] We may find cases in which Aristotle has not been careful to maintain the strict logical sense of *συμβεβηκός* or *συμβέβηκεν*, where he applies these terms to Genus or Proprium: *e. g.* Topic. II. iii. p. 110, b. 24; Soph. El. vi. p. 168, b. 1.

2. Suppose the thesis set up by the respondent to be an universal affirmative, or an universal negative. You (the interrogator or assailant) should review the particulars contained under these universals. Review them not at once as separate individuals, but as comprised in subordinate genera and species; beginning from the highest, and descending down to the lowest species which is not farther divisible except into individuals. Thus, if the thesis propounded be, The cognition of opposites is one and the same cognition; you will investigate whether this can be truly predicated respecting all the primary species of *Opposita*: respecting *Relata* and *Correlata*, respecting Contraries, respecting Contradictories, respecting *Habitus* and *Privatio*. If, by going thus far, you obtain no result favourable to your purpose,[a] you must proceed farther, and subdivide until you come to the lowest species:— Is the cognition of just and unjust one and the same? that of double and half? of sight and blindness? of existence and non-existence? If in all, or in any one, of these cases you can show that the universal thesis does not hold, you will have gained your point of refuting it. On the other hand, if, when you have enumerated many particulars, the thesis is found to hold in all, the respondent is entitled to require you to grant it as an universal proposition, unless you can produce a satisfactory counter-example. If you decline this challenge, you will be considered an unreasonable debater.[b]

3. You will find it useful to define both the accident predicated in the thesis, and the subject respecting

[a] Topic. II. ii. p. 109, b. 20: *κἂν ἐπὶ τούτων μήπω φανερὸν ᾖ, πάλιν ταῦτα διαιρετέον μέχρι τῶν ἀτόμων, οἷον εἰ τῶν δικαίων καὶ ἀδίκων*, &c.

[b] Ibid. b. 25-30. *ἐὰν γὰρ μηδέτερον τούτων ποιῇ, ἄτοπος φανεῖται μὴ τιθείς.*

which it is predicated, or at least one of them: you will see then whether these definitions reveal anything false in the affirmation of the thesis. Thus, if the thesis affirms that it is possible to do injustice to a god, you will define what is meant by doing injustice. The definition is—hurting intentionally: you can thus refute the thesis by showing that no injustice to a god can possibly be done; for a god cannot be hurt.[a] Or let the thesis maintained be, The virtuous man is envious. You define envy, and you find that it is—vexation felt by reason of the manifest success of some meritorious man. Upon this definition it is plain that the virtuous man cannot feel envy: he would be worthless, if he did feel it. Perhaps some of the terms employed in your definition may themselves require definition; if so, you will repeat the process of defining until you come to something plain and clear.[b] Such an analysis will often bring out some error at first unperceived in the thesis.

4. It will be advisable, both for assailant and respondent, to discriminate those cases in which the authority of the multitude is conclusive from those in which it is not. Thus, in regard to the meaning of terms and in naming objects, we must speak like the multitude; but, when the question is as to what objects deserve to be denominated so and so, we must not feel bound by the multitude, if there be any special dissentient authority.[c] That which produces good health we must call wholesome, as the multitude do; but, in calling this or that substance wholesome, the physician must be our guide.

[a] Topic. II. ii. p. 109, b. 34: *οὐ γὰρ ἐνδέχεται βλάπτεσθαι τὸν θεόν.*

[b] Ibid. p. 110, a. 4: *λαμβάνειν δὲ καὶ ἀντὶ τῶν ἐν τοῖς λόγοις ὀνομάτων λόγους, καὶ μὴ ἀφίστασθαι ἕως ἂν εἰς γνώριμον ἔλθῃ.*

[c] Ibid. a. 14-22.

5. Aristotle gives more than one suggestion as to those cases in which the terms of the thesis have a double or triple sense, yet in which the thesis is propounded either as an universal affirmative or as an universal negative. If the respondent is himself not aware of the double sense of his thesis, while you (the questioner) are aware of it, you will prove the point which you are seeking to establish against him in one or other of the two senses, if you cannot prove it in both. If he is aware of it in the double sense, he will insist that you have chosen the sense which he did not intend.[a] This mode of procedure will be available to the respondent as well as to you; but it will be harder to him, since his thesis is universal. For, in order to make good an universal thesis, he must obtain your assent to a preliminary assumption or convention, that, if he can prove it in one sense of the terms, it shall be held proved in both; and, unless the proposition be so plausible that you are disposed to grant him this, he will not succeed in the procedure.[b] But you, on your side, as refuting, do not require any such preliminary convention or acquiescence; for, if you prove the negative in any single case, you succeed in overthrowing the universal affirmative, while, if you prove the affirmative in any single case, you succeed in overthrowing the universal negative.[c] Such procedure, however, is to be adopted only when you can find no argument applicable to the equivocal thesis in all its separate meanings; this last sort of argument, wherever it can be found, being always better.[d]

[a] Topic. II. iii. p. 110, a. 24.

[b] Ibid. a. 37: *κατασκευάζουσι δὲ προδιομολογητέον ὅτι εἰ ὁτιοῦν ὑπάρχει, παντὶ ὑπάρχει, ἂν πιθανὸν ᾖ τὸ ἀξίωμα· οὐ γὰρ ἀπόχρη πρὸς τὸ δεῖξαι ὅτι παντὶ ὑπάρχει τὸ ἐφ' ἑνὸς διαλεχθῆναι.*

[c] Ibid. a. 32: *πλὴν ἀνασκευάζοντι μὲν οὐδὲν δεῖ ἐξ ὁμολογίας διαλέγεσθαι.*

[d] Ibid. b. 4.

In cases where the double meaning is manifest, the two meanings must be distinguished by both parties, and the argument conducted accordingly. Where the term has two or more meanings (not equivocal but) related to each other by analogy, we must deal with each of these meanings distinctly and separately.[a] If our purpose is to refute, we select any one of them in which the proposition is inadmissible, neglecting the others: if our purpose is to prove, we choose any one in which the proposition is true, neglecting the others.[b]

6. Observe that a predicate which belongs to the genus does not necessarily belong to any one of its species, but that any predicate which belongs to one of the species does belong also to the genus; on the other hand, that any predicate which can be denied of the genus may be denied also of all its contained species, but that any predicate which can be denied of some one or some portion of the contained species cannot for that reason be denied of the genus. You may thus prove from one species to the genus, and disprove from the genus to each one species; but not *vice versâ*. Thus, if the respondent grants that there exist cognitions both estimable and worthless, you are warranted in inferring that there exist habits of mind estimable and worthless; for cognition is a species under the genus habit of mind. But if the negative were granted, that there exist no cognitions both estimable and worthless, you could not for that reason infer that there are no habits of mind estimable and worthless.

[a] Topic. II. iii. p. 110, b. 16-p. 111, a. 7. This *locus* is very obscurely stated by Aristotle.

[b] Ibid. p. 110, b. 29-32: *ἐὰν βουλώμεθα κατασκευάσαι, τὰ τοιαῦτα προοιστέον ὅσα ἐνδέχεται, καὶ διαιρετέον εἰς ταῦτα μόνον ὅσα καὶ χρήσιμα πρὸς τὸ κατασκευάσαι· ἂν δ' ἀνασκευάσαι, ὅσα μὴ ἐνδέχεται, τὰ δὲ λοιπὰ παραλειπτέον.*

Aristotle's precepts indicate the way of managing the debate *with a view to success.*

So, if it were granted to you that there are judgments correct and erroneous, you could not for that reason infer that there were perceptions of sense correct and erroneous; perceiving by sense being a species under the genus judging. But, if it were granted that there were no judgments correct and erroneous, you might thence infer the like negative about perceptions of sense.[a]

7. Keep in mind also that if there be any subject of which you can affirm the genus, of that same subject you must be able to affirm one or other of the species contained under the genus. Thus, if science be a predicate applicable, grammar, music, or some other of the special sciences must also be applicable: if any man can be called truly a scientific man, he must be a grammarian, a musician, or some other specialist. Accordingly, if the thesis set up by your respondent be, The soul is moved, you must examine whether any one of the known varieties of motion can be truly predicated of the soul, *e.g.*, increase, destruction, generation, &c. If none of these special predicates is applicable to the soul, neither is the generic predicate applicable to it; and you will thus have refuted the thesis. This *locus* may serve as a precept for proof as well as for refutation; for, equally, if the soul be moved in any one species of motion, it is moved, and, if the soul be not moved in any species of motion, it is not moved.[b]

[a] Topic. II. iv. p. 111, a. 14-32. *νῦν μὲν οὖν ἐκ τοῦ γένους περὶ τὸ εἶδος ἡ ἀπόδειξις· τὸ γὰρ κρίνειν γένος τοῦ αἰσθάνεσθαι· ὁ γὰρ αἰσθανόμενος κρίνει πως—ὁ μὲν οὖν πρότερος τόπος ψευδής ἐστι πρὸς τὸ κατασκευάσαι, ὁ δὲ δεύτερος ἀληθής.—πρὸς δὲ τὸ ἀνασκευάζειν ὁ μὲν πρότερος ἀληθής, ὁ δὲ δεύτερος ψευδής.*

It is here a point deserving attention, that Aristotle ranks *τὸ αἰσθάνεσθαι* as a species under the genus *τὸ κρίνειν*. This is a notable circumstance in the Aristotelian psychology.

[b] Topic. II. iv. p. 111, a. 33-b. 11.

8. Where the thesis itself presents no obvious hold for interrogation, turn over the various definitions that have been proposed of its constituent terms; one or other of these definitions will often afford matter for attack.[a] Look also to the antecedents and consequents of the thesis—what must be assumed and what will follow, if the thesis be granted. If you can disprove the consequent of the proposition, you will have disproved the proposition itself. On the other hand, if the antecedent of the proposition be proved, the proposition itself will be proved also.[b] Examine also whether the proposition be not true at some times, and false at other times. The thesis, What takes nourishment grows necessarily, is true not always, but only for a certain time: animals take nourishment during all their lives, but grow only during a part of their lives. Or, if a man should say that knowing is remembering, this is incorrect; for we remember nothing but events past, whereas we know not only these, but present and future also.[c]

9. It is a sophistical procedure (so Aristotle terms it) to transfer the debate to some point on which we happen to be well provided with arguments, lying apart from the thesis defended. Such transfer, however, may be sometimes necessary. In other cases it is not really but only apparently necessary; in still other cases it is purely gratuitous, neither really nor apparently necessary. It is really necessary, when the respondent, having denied some proposition perfectly relevant to his thesis, stands to his denial and accepts the debate upon it, the proposition being one on which a good stock of arguments may be found against him;

[a] Topic. II. iv. p. 111, b. 12-16. [b] Ibid. b. 17-23.
[c] Ibid. b. 24-31.

also, when you are endeavouring to disprove the thesis by an induction of negative analogies.[a] It is only apparently, and not really, necessary, when the proposition in debate is not perfectly relevant to the thesis, but merely has the semblance of being so. It is neither really nor apparently necessary, when there does not exist even this semblance of relevance, and when some other way is open of bringing bye-confutation to bear on the respondent. You ought to avoid entirely such a procedure in this last class of cases; for it is an abuse of the genuine purpose of Dialectic. If you do resort to it, the respondent should grant your interrogations, but at the same time notify that they are irrelevant to the thesis. Such notification will render his concessions rather troublesome than advantageous for your purpose.[b]

10. You will recollect that every proposition laid down or granted by the respondent carries with it by implication many other propositions; since every affirmation has necessary consequences, more or fewer. Whoever says that Sokrates is a man, has said also that he is an animal, that he is a living creature, biped, capable of acquiring knowledge. If you can disprove any of these necessary consequences, you will have disproved the thesis itself. You must take care, however, that you fix upon some one of the consequences which is really easier, and not more difficult, to refute than the thesis itself.[c]

[a] Topic. II. v. p. 111, b. 32-p. 112, a. 2: *ἔτι ὁ σοφιστικὸς τρόπος, τὸ ἄγειν εἰς τοιοῦτον πρὸς ὃ εὐπορήσομεν ἐπιχειρημάτων*, &c.

[b] Ibid. p. 112, a. 2-15. *δεῖ δ' εὐλαβεῖσθαι τὸν ἔσχατον τῶν ῥηθέντων τρόπων· παντελῶς γὰρ ἀπηρτημένος καὶ ἀλλότριος ἔοικεν εἶναι τῆς διαλεκτικῆς.* The epithet *σοφιστικὸς τρόπος* is probably intended by Aristotle to apply only to this last class of cases.

This paragraph is very obscure, and is not much elucidated by the long Scholion of Alexander (pp. 267-268, Br.).

[c] Topic. II. v. p. 112, a. 16-23.

11. Perhaps the thesis set up by the respondent may be of such a nature that one or other of two contrary predicates must belong to the subject; *e.g.*, either health or sickness. In that case, if you are provided with arguments bearing on one of the two contraries, the same arguments will also serve indirectly for proof, or for disproof, of the other. Thus, if you show that one of the two contraries does belong to the subject, the same arguments prove that the other does not; *vice versâ*, if you show that one of them does not belong, it follows that the other does.[a]

12. You may find it advantageous, in attacking the thesis, to construe the terms in their strict etymological sense, rather than in the sense which common usage gives them.[b]

13. The predicate may belong to its subject either necessarily, or usually, or by pure hazard. You will take notice in which of these three ways the respondent affirms it, and whether that which he chooses is conformable to the fact. If he affirms it as necessary, when it is really either usual or casual, the thesis will be open to your attacks. If he affirms it without clearly distinguishing in which of the three senses he intends it to be understood, you are at liberty to construe it in that one of the three senses which best suits your argument.[c]

14. Perhaps the thesis may have predicate and sub-

[a] Topic. II. vi. p. 112, a. 25-31. *δῆλον οὖν ὅτι πρὸς ἄμφω χρήσιμος ὁ τόπος.*

[b] Ibid. a. 32-38: *ἔτι τὸ ἐπιχειρεῖν μεταφέροντα τοὔνομα ἐπὶ τὸν λόγον, ὡς μάλιστα προσῆκον ἐκλαμβάνειν ἢ ὡς κεῖται τοὔνομα.*

The illustrative examples which follow prove that *λόγον* here means the etymological origin, and not the definition, which is its more usual meaning.

[c] Ibid. b. 1-20. This *locus* seems unsuitable in that part of the Topica where Aristotle professes to deal with theses *τοῦ συμβεβηκότος*, or theses affirming or denying *accidental* predicates. It is one of the suppositions here that the respondent affirms the predicate as *necessary*.

ject exactly synonymous, so that the same thing will be affirmed as an accident of itself. On this ground it will be assailable.[a]

15. Sometimes the thesis will have more than one proposition contrary to it. If so, you may employ in arguing against it that one among its various contraries which is most convenient for your purpose.[b] Perhaps the predicate (accidental) of the thesis may have some contrary: if it has, you will examine whether that contrary belongs to the subject of the thesis; and, should such be the case, you may use it as an argument to refute the thesis itself.[c] Or the predicate of the thesis may be such that, if the thesis be granted, it will follow as a necessary consequence that contrary predicates must belong to the same subject. Thus, if the thesis be that the Platonic Ideas exist *in us*, it follows necessarily that they are both in motion and at rest; both perceivable by sense, and cogitable by intellect.[d] As these two predicates (those constituting the first pair as well as the second pair) are contrary to each other, and cannot both belong to the same subject, this may be used as an argument against the thesis from which such consequence follows.

[a] Topic. II. vi. p. 112, b. 21-26.

[b] Ibid. vii. p. 112, b. 28-p. 113, a. 19. *δῆλον οὖν ἐκ τῶν εἰρημένων ὅτι τῷ αὐτῷ πλείονα ἐναντία συμβαίνει γίνεσθαι.—λαμβάνειν οὖν τῶν ἐναντίων ὁπότερον ἂν ᾖ πρὸς τὴν θέσιν χρήσιμον.*

[c] Ibid. viii. p. 113, a. 20-23.

[d] Ibid. a. 24-32: *ἢ εἴ τι τοιοῦτον εἴρηται κατά τινος, οὗ ὄντος ἀνάγκη τὰ ἐναντία ὑπάρχειν· οἷον εἰ τὰς ἰδέας ἐν ἡμῖν ἔφησεν εἶναι· κινεῖσθαί τε γὰρ καὶ ἠρεμεῖν αὐτὰς συμβήσεται, ἔτι δὲ αἰσθητὰς καὶ νοητὰς εἶναι.* Aristotle then proceeds to state how this consequence arises. Those who affirm the Platonic Ideas, assign to them as fundamental characteristic, that they are at rest and cogitable. But, if the Ideas exist *in us*, they must be moveable, because *we* are moved; they must also be perceivable by sense, because it is through vision only that we discriminate and know differences of form. Waitz observes (in regard to the last pair, *καὶ αἰσθηταί*): "Nam singulæ ideæ certam quandam rerum speciem et formam exprimunt: species autem et forma oculis cernitur." I do not clearly see, however, that this is a consequence of affirming Ideas to be *ἐν ἡμῖν*; it is equally true if they are *not ἐν ἡμῖν*.

16. We know that whatever is the recipient of one of two contraries, is capable also of becoming recipient of the other. If, therefore, the predicate of the thesis has any contrary, you will examine whether the subject of the thesis is capable of receiving such contrary. If not, you have an argument against the thesis. Let the thesis be, The appetitive principle is ignorant. If this be true, that principle must be capable of knowledge.[a] Since this last is not generally admitted, you have an argument against the thesis.

17. We recognize four varieties of *Opposita*: (1) Contradictory; (2) Contrary; (3) *Habitus* and *Privatio*; (4) *Relata*. You will consider how the relation in each of these four varieties bears upon the thesis in debate.

In regard to Contradictories, you are entitled, converting the terms of the thesis, to deny the predicate of the converted proposition respecting the negation of the subject. Thus, if man is an animal, you are entitled to infer, What is not an animal is not a man. You will prove this to be an universal rule by Induction; that is, by citing a multitude of particular cases in which it is indisputably true, without possibility of finding any one case in which it does not apply. If you can prove or disprove the converted obverse of the thesis—What is not an animal is not a man—you will have proved, or disproved, the thesis itself, Man is an animal. This *locus* is available both for assailant and respondent.[b]

[a] Topic. II. vii. p. 113, a. 33-b. 10.

[b] Ibid. viii. p. 113, b. 15-26: *ἐπεὶ δ' αἱ ἀντιθέσεις τέσσαρες, σκοπεῖν ἐκ μὲν τῶν ἀντιφάσεων ἀνάπαλιν ἐκ τῆς ἀκολουθήσεως καὶ ἀναιροῦντι καὶ κατασκευάζοντι· λαμβάνειν δ' ἐξ ἐπαγωγῆς, οἷον εἰ ὁ ἄνθρωπος ζῷον, τὸ μὴ ζῷον οὐκ ἄνθρωπος· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων —ἐπὶ πάντων οὖν τὸ τοιοῦτον ἀξιωτέον.*

Aristotle's declaration, that this great logical rule can only be proved by Induction, deserves notice. I have

In regard to Contraries, you will study the thesis, to see whether the contrary of the predicate can be truly affirmed respecting the contrary of the subject, or whether the contrary of the subject can be truly affirmed respecting the contrary of the predicate. This last alternative occurs sometimes, but not often: in general, the first alternative is found to be true. You must make good your point here also by Induction, or by repetition of particular examples. This *locus* will serve either for the purpose of refutation or for that of defence, according to circumstances. If neither of the two alternatives above-mentioned is found correct, this is an argument against the thesis.[a]

In regard to *Habitus* and *Privatio*, the rule is the same as about Contraries; only that the first of the two above alternatives always holds, and the second never occurs.[b] If sensible perception can be predicated of vision, insensibility also can be predicated of blindness; otherwise, the thesis fails.

In regard to *Relata*, the inference holds from the correlate of the subject to the correlate of the predicate. If knowledge is belief, that which is known is believed; if vision is sensible perception, that which is visible is sensibly perceivable. Some say that there are cases in which the above does not hold; *e.g.*, That which is sensibly perceivable is knowable; yet sensible perception is not knowledge. But this objection is not valid; for many persons dispute the first of the two pro-

remarked the same thing about his rules for the conversion of propositions, in the beginning of the Analytica Priora. See above, p. 209, seq.

[a] Topic. II. viii. p. 113, b. 27-p. 114, a. 6. *λαμβάνειν δὲ καὶ τὰ τοιαῦτα ἐξ ἐπαγωγῆς, ἐφ' ὅσον χρήσιμον. —σπάνιον δὲ τὸ ἀνάπαλιν ἐπὶ τῶν ἐναντίων συμβαίνει, ἀλλὰ τοῖς πλείστοις ἐπὶ ταὐτὰ ἡ ἀκολούθησις. εἰ οὖν μητ' ἐπὶ ταὐτὰ τῷ ἐναντίῳ τὸ ἐναντίον ἀκολουθεῖ μήτε ἀνάπαλιν, δῆλον ὅτι οὐδὲ τῶν ῥηθέντων ἀκολουθεῖ τὸ ἕτερον τῷ ἑτέρῳ.*

[b] Ibid. p. 114, a. 7-12.

positions. This *locus* will be equally available for the purpose of refutation; thus, you may argue—That which is sensibly perceivable is not knowable, because sensible perception is not knowledge.[a]

18. You will look at the terms of the proposition, also, in regard to their Derivatives, Inflections, &c., and to matters associated with them in the way of production, preservation, &c. This *locus* serves both for proof and for refutation. What is affirmable of the subject, is affirmable also of its derivatives: what is not affirmable of the derivatives, is not affirmable of the subject itself.[b]

19. Arguments may often be drawn, both for proof and for refutation, from matters Similar or Analogous to the subject or predicate of the thesis. Thus, if one and the same cognition comprehends many things, one and the same opinion will also comprehend many things. If to possess vision is to see, then also to possess audition is to hear. If to possess audition is *not* to hear, then neither is to possess vision to see. The argument may be urged whether the resemblance is real, or only generally supposed. Sometimes, however, the inference will not hold from one to many. Thus, if to know is to cogitate, then to know many things should be to cogitate many things. But this last is impossible. A man may know many things, but he cannot cogitate many things; therefore, to know is *not* to cogitate.[c]

[a] Topic. II. viii. p. 114, a. 13-25.

[b] Ibid. ix. p. 114, a. 26-b. 5. *σύστοιχα, πτώσεις, τὰ ποιητικὰ καὶ φυλακτικά—δῆλον οὖν ὅτι ἑνὸς ὁποιουοῦν δειχθέντος τῶν κατὰ τὴν αὐτὴν συστοιχίαν ἀγαθοῦ ἢ ἐπαινετοῦ, καὶ τὰ λοιπὰ πάντα δεδειγμένα γίνεται.* —b. 23: *ὧν μὲν γὰρ τὰ ποιητικὰ ἀγαθά, καὶ αὐτὰ τῶν ἀγαθῶν, ὧν δὲ τὰ φθαρτικὰ ἀγαθά, αὐτὰ τῶν κακῶν.*

[c] Ibid. x. p. 114, b. 25-36: *πάλιν ἐπὶ τῶν ὁμοίων, εἰ ὁμοίως ἔχει,—καὶ ἐπὶ τῶν ὄντων καὶ τῶν δοκούντων· χρήσιμος δ' ὁ τόπος πρὸς ἄμφω—σκοπεῖν δὲ καὶ εἰ ἐφ' ἑνὸς καὶ εἰ ἐπὶ πολλῶν ὁμοίως ἔχει· ἐνιαχοῦ γὰρ διαφωνεῖ.*

20. There are various *loci* for argument, arising from degrees of Comparison—more, less, equally. One is the argument from concomitant variations, which is available both for proof and for disproof. If to do injustice is evil, to do more injustice is more evil. If an increase in degree of the subject implies an increase in degree of the predicate, then the predicate is truly affirmed; if not, not. This may be shown by Induction, or repetition of particular instances.[a] Again, suppose the same predicate to be affirmable of two distinct subjects A and B, but to be more probably affirmable of A than of B. Then, if you can show that it does *not* belong to A, you may argue (*à fortiori*) that it does *not* belong to B; or, if you can show that it belongs to B, you may argue (*à fortiori*) that it belongs also to A. Or, if two distinct predicates be affirmable respecting the same subject but with unequal degrees of probability, then, if you can disprove the more probable of the two, you may argue from thence in disproof of the less probable; and, if you can prove the less probable, you may argue from thence in proof of the more probable. Or, if two distinct predicates be affirmable respecting two distinct subjects but with unequal degrees of probability, then, if you can disprove the more probable you may argue from thence against the less probable; and, if you can prove the less probable, you are furnished with an argument in proof of the more probable.[b] If the degrees of probability, instead of being unequal, are equal or alike, you may

[a] Topic. II. x. p. 114, b. 37-p. 115, a. 5: *εἰσὶ δὲ τοῦ μᾶλλον τύποι τέσσαρες, εἷς μὲν εἰ ἀκολουθεῖ τὸ μᾶλλον τῷ μᾶλλον,—χρήσιμος δὲ πρὸς ἄμφω ὁ τόπος· εἰ μὲν γὰρ ἀκολουθεῖ τῇ τοῦ ὑποκειμένου ἐπιδόσει ἡ τοῦ συμβεβηκότος ἐπίδοσις, καθάπερ εἴρηται, δῆλον ὅτι συμβέβηκεν, εἰ δὲ μὴ ἀκολουθεῖ, οὐ συμβέβηκεν. τοῦτο δ' ἐπαγωγῇ ληπτέον.*

[b] Ibid. p. 115, a. 5-14.

still, in the cases mentioned, argue in like manner from proof or disproof of the one to proof or disproof of the other.[a]

21. Another *locus* for argument is, that *ex adjuncto*. If the subject, prior to adjunction of the attribute, be not white or good, and if adjunction of the attribute makes it white or good, then, you may argue that the adjunct must itself be white or good. And you might argue in like manner, if the subject prior to adjunction were to a certain extent white or good, but became more white or more good after such adjunction.[b] But this *locus* will not be found available for the negative inference or refutation. You cannot argue, because the adjunction does not make the subject white or good, that therefore the adjunct itself is not white or not good.[c]

22. If the predicate be affirmable of the subject in greater or less degree, it must be affirmable of the subject simply and absolutely. Unless the subject be one that can be called white or good, you can never call it more white or more good. This *locus* again, however, cannot be employed in the negative, for the purpose of refutation. Because the predicate cannot be affirmed of the subject in greater or less degree, you are not warranted in inferring that it cannot be affirmed of the subject at all. Sokrates cannot be called in greater or less degree a man; but you cannot thence infer that he is not called a man simply.[d] If the predicate can be denied of the subject simply and absolutely, it can be denied thereof with every sort of qualification: if it can be affirmed of the subject with qualification, it can also be affirmed thereof simply and absolutely, as a possible

[a] Topic. II. x. p. 115, a. 15-24: *ἐκ τοῦ ὁμοίως ὑπάρχειν ἢ δοκεῖν ὑπάρχειν*, &c.

[b] Ibid. xi. p. 115, a. 26-33.

[c] Ibid. a. 32-b. 2.

[d] Ibid. b. 3-10.

predicate.[a] This, however, when it comes to be explained, means only that it can be affirmed of some among the particulars called by the name of the subject. Aristotle recognizes that the same predicate may often be affirmed of the subject *secundum quid*, and denied of the subject simply and absolutely. In some places, (as among the Triballi) it is honourable to sacrifice your father; simply and absolutely, it is not honourable. To one who is sick, it is advantageous to undergo medical treatment; speaking simply and absolutely (*i.e.*, to persons generally in the ordinary state of health), it is not advantageous. It is only when you can truly affirm the proposition, without adding any qualifying words, that the proposition is true simply and absolutely.[b]

III.

Such are the chief among the thirty-seven *Loci* which Aristotle indicates for debating dialectically those theses in which the predication is only of Accident—not of Genus, or Proprium, or Definition. He proceeds (in the Third Book of the Topica) to deal separately with one special branch of such theses, respecting *Expetenda* and *Fugienda*: where the question put is, Of two or more distinct subjects, which is the more desirable or the better? The cases supposed are those in which the difference of value between the two subjects compared is not conspicuous and unmistakeable, but where there is a tolerably near approximation of value between them, so as to warrant doubt and debate.[c]

We must presume that questions of this class occurred

[a] Topic. II. xi. p. 115, b. 11-35. *εἰ γὰρ κατά τι ἐνδέχεται, καὶ ἁπλῶς ἐνδέχεται.*

[b] Ibid. b. 33: *ὥστε ὁ ἂν μηδενὸς προστιθεμένου δοκῇ εἶναι καλὸν ἢ αἰσχρὸν ἢ ἄλλο τι τῶν τοιούτων, ἁπλῶς ῥηθήσεται.*

[c] Ibid. III. i. p. 116, a. 1-12: *Πότερον δ' αἱρετώτερον ἢ βέλτιον δυεῖν ἢ πλειόνων, ἐκ τῶνδε σκεπτέον.* &c.

very frequently among the dialectical debates of Aristotle's contemporaries; so that he thinks it necessary to give advice apart for conducting them in the best manner.

1. Of two good subjects compared, that is better and more desirable which is the more lasting; or which is preferred by the wise and good man; or by the professional artist in his own craft; or by right law; or by the multitude, all or most of them. That is absolutely or simply better and more desirable, which is declared to be such by the better cognition; that is better to any given individual, which is declared to be better by his own cognition.[a]

2. That is more desirable which is included in the genus good, than what is not so included; that which is desirable on its own account and *per se*, is better than what is desirable only on account of something else and *per accidens*; the cause of what is good in itself is more desirable than the cause of what is good by accident.[b]

3. What is good absolutely and simply (*i.e.*, to all and at all times) is better than what is good only for a special occasion or individual; thus, to be in good health is better than being cut for the stone. What is good by nature is better than what is good not by nature; *e.g.*, justice (good by nature), than the just individual, whose character must have been acquired.[c] What is good, or what is peculiarly appurtenant, to the more elevated of two subjects is better than what is good or peculiar to the less elevated. Good, having its place in the better, prior, and more exalted elements of any subject, is more desirable than good belonging to

[a] Topic. III. i. p. 116, a. 13-22. [b] Ibid. a. 23-b. 7.
[c] Ibid. b. 7-12.

the derivative, secondary, and less exalted; thus, health, which has its seat in proper admixture and proportion of the fundamental constituents of the body (wet, dry, hot, cold), is better than strength or beauty—strength residing in the bones and muscles, beauty in proper symmetry of the limbs.[a] Next, an end is superior to that which is means thereunto; and, in comparing two distinct means, that which is nearer to the end is the better. That which tends to secure the great end of life is superior to that which tends towards any other end; means to happiness is better than means to intelligence; also the possible end, to the impossible. Comparing one subject as means with another subject as end, we must examine whether the second end is more superior to the end produced by the first subject, than the end produced by the first subject is superior to the means or first subject itself. For example, in the two ends, happiness and health, if happiness as an end surpasses health as an end in greater proportion than health surpasses the means of health, then the means producing happiness is better than the end health.[b]

Again, that which is more beautiful, honourable, and praiseworthy *per se*, is better than what possesses these same attributes in equal degree but only on account of some other consequence. Thus, friendship is superior to wealth, justice to strength; for no one values wealth

[a] Topic. III. i. p. 116, b. 12-22: *καὶ τὸ ἐν βελτίοσιν ἢ προτέροις ἢ τιμιωτέροις βέλτιον, οἷον ὑγίεια ἰσχύος καὶ κάλλους. ἡ μὲν γὰρ ἐν ὑγροῖς καὶ ξηροῖς καὶ θερμοῖς καὶ ψυχροῖς, ἁπλῶς δ' εἰπεῖν ἐξ ὧν πρώτων συνέστηκε τὸ ζῷον, τὰ δ' ἐν τοῖς ὑστέροις· ἡ μὲν γὰρ ἰσχὺς ἐν τοῖς νεύροις καὶ ὀστοῖς, τὸ δὲ κάλλος τῶν μελῶν τις συμμετρία δοκεῖ εἶναι.*

The reason given in this *locus* for superior estimation is a very curious one: the fundamental or primary constituents rank higher than compounds or derivatives formed by them or out of them. Also, the definition of beauty deserves attention: the Greeks considered beauty to reside more in proportions of form of the body than in features of the face.

[b] Ibid. b. 22-36.

except for its consequences, whereas we esteem friendship *per se*, even though no consequences ensue from it.[a]

Where the two subjects compared are in themselves so nearly equal that the difference of merit can hardly be discerned, we must look to the antecedents or consequents of each, especially to the consequents; and, according as these exhibit most of good or least of evil, we must regulate our estimation of the two subjects to which they respectively belong.[b] The larger lot of good things is preferable to the smaller. Sometimes what is not in itself good, if cast into the same lot with other things very good, is preferable to another thing that is in itself good. Thus, what is not *per se* good, if it goes along with happiness, is preferable even to justice and courage. The same things, when taken along with pleasure or with the absence of pain, are preferable to themselves without pleasure or along with pain.[c] Everything is better, at the season when it tells for most, than itself at any other season; thus, intelligence and absence of pain are to be ranked as of more value in old age than in youth; but courage and temperance are more indispensably required, and therefore more to be esteemed, in youth than in old age. What is useful on all or most occasions is more to be esteemed than what is useful only now and then; *e.g.*, justice and moderation, as compared with courage: also that which being possessed by every one, the other would not be required; *e.g.*, justice is better than courage, for, if every one were just, courage would not be required.[d]

Among two subjects the more desirable is that of which the generation or acquirement is more desirable; that of which the destruction or the loss is more to be

[a] Topic. III. i. p. 116, b. 33-p. 117, a. 4.
[b] Ibid. p. 117, a. 5-15.
[c] Ibid. a. 16-25.
[d] Ibid. a. 26-b. 2.

deplored; that which is nearer or more like to the *Summum Bonum* or to that which is better than itself (unless indeed the resemblance be upon the ridiculous side, in the nature of a caricature, as the ape is to man[a]); that which is the more conspicuous; the more difficult to attain; the more special and peculiar; the more entirely removed from all bad accompaniments; that which we can best share with friends; that which we wish to do to our friends, rather than to ordinary strangers (*e.g.*, doing justice or conferring benefit, than seeming to do so; for towards our friends we prefer doing this in reality, while towards strangers we prefer seeming to do so[b]); that which we cannot obtain from others, as compared with that which can be hired; that which is unconditionally desirable, as compared with that which is desirable only when we have something else along with it; that of which the absence is a ground of just reproach against us and ought to make us ashamed;[c] that which does good to the proprietor, or to the best parts of the proprietor (to his mind rather than his body);[d] that which is eligible on its own ground, rather than from opinion of others; that which is eligible on both these accounts jointly, than either.[e] Acquisitions of supererogation are better than necessaries, and are sometimes more eligible: thus, to live well is better than life simply; philosophizing is better than money-making; but sometimes necessaries are more

[a] Topic. III. ii. p. 117, b. 2-17. *σκοπεῖν δὲ καὶ εἰ ἐπὶ τὰ γελοιότερα εἴη ὅμοιον, καθάπερ ὁ πίθηκος τῷ ἀνθρώπῳ, τοῦ ἵππου μὴ ὄντος ὁμοίου· οὐ γὰρ κάλλιον ὁ πίθηκος, ὁμοιότερον δὲ τῷ ἀνθρώπῳ.*

[b] Ibid. b. 20-p. 118, a. 5. *ἃ πρὸς τὸν φίλον πρᾶξαι μᾶλλον βουλόμεθα ἢ ἃ πρὸς τὸν τυχόντα, ταῦτα αἱρετώτερα, οἷον τὸ δικαιοπραγεῖν καὶ εὖ ποιεῖν μᾶλλον ἢ τὸ δοκεῖν· τοὺς γὰρ φίλους εὖ ποιεῖν βουλόμεθα μᾶλλον ἢ δοκεῖν, τοὺς δὲ τυχόντας ἀνάπαλιν.*

[c] Ibid. p. 118, a. 16-26.

[d] Ibid. iii. p. 118, a. 29.

[e] Ibid. b. 20. The definition of this last condition is—that we should not care to possess the thing if no one knew that we possessed it: *ὅρος δὲ τοῦ πρὸς δόξαν, τὸ μηδενὸς συνειδότος μὴ ἂν σπουδάσαι ὑπάρχειν.*

eligible, as, *e.g.*, to a starving man. Speaking generally, necessaries are more eligible; but the others are better.[a]

Among many other *loci*, applicable to this same question of comparative excellence between two different subjects, one more will suffice here. You must distinguish the various ends in relation to which any given subject is declared to be eligible: the advantageous, the beautiful, the agreeable. That which conduces to all the three is more eligible than that which conduces to one or two of them only. If there be two subjects, both of them conducive to the same end among the three, you must examine which of them conduces to it most. Again, that which conduces to the better end (*e.g.*, to virtue rather than to pleasure) is the more eligible. The like comparison may be applied to the *Fugienda* as well as to the *Expetenda*. That is most to be avoided which shuts us out most from the desirable acquisitions: *e.g.*, sickness is more to be avoided than ungraceful form; for sickness shuts us out more completely both from virtue and from pleasure.[b]

The same *loci* which are available for the question of comparison will be also available in the question of positive eligibility or positive ineligibility.[c] Further, it holds for all cases of the kind that you should enunciate the argument in the most general terms that each case admits; in this way it will cover a greater number of particulars. Slight mutations of language will often here strengthen your case: that which is (good) by nature is more (good) than that which is (good) not by nature; that which makes the subject to which it

[a] Topic. III. ii. p. 118, a. 6-14. *οὐ γὰρ εἰ βελτίω, ἀναγκαῖον καὶ αἱρετώτερα· τὸ γοῦν φιλοσοφεῖν βέλτιον τοῦ χρηματίζεσθαι, ἀλλ' οὐχ αἱρετώτερον τῷ ἐνδεεῖ τῶν ἀναγκαίων. τὸ δ' ἐκ περιουσίας ἐστίν, ὅταν ὑπαρχόντων τῶν ἀναγκαίων ἄλλα τινὰ προσκατασκευάζηταί τις τῶν καλῶν. σχεδὸν δ' ἴσως αἱρετώτερον τὸ ἀναγκαῖόν ἐστι, βέλτιον δὲ τὸ ἐκ περιουσίας.*

[b] Ibid. iii. p. 118, b. 27-36.

[c] Ibid. iv. p. 119, a. 1.

is better than that which does not make the subject good.[a]

The *loci* just enumerated are Universal, and applicable to the debate of theses propounded in universal terms; but they will also be applicable, if the thesis propounded be a Particular proposition.

If you prove the universal affirmative, you will at the same time prove the particular; if you prove the universal negative, you prove the particular negative also. The universal *loci* from Opposites, from Conjugates, from Inflections, will be alike applicable to particular propositions. Thus, if we look at the universal *locus* from Contraries, If all pleasure is good, then all pain is evil,—this will apply also to the particular, If some pleasure is good, then some pain is evil: in the particular as in the universal form the proposition is alike an *Endox* or conformable to common received opinion. The like may be said about the *loci* from *Habitus* and *Privatio;* also about those from Generation and Destruction;[b] again, from More, Less, and Equally—this last, however, with some restriction, for the *locus* from Less will serve only for proving an affirmative. Thus, if some capacity is a less good than science, while yet some capacity is a good, then, *à fortiori*, some science is a good. But, if you take the same *locus* in the negative and say that no capacity is a good, you will not be warranted in saying, for that reason, that no science is a good.[c] You may apply this same *locus* from Less to compare, not merely

[a] Topic. III. v. p. 119, a. 12: *ληπτέον δ' ὅτι μάλιστα καθόλου τοὺς τόπους περὶ τοῦ μᾶλλον καὶ τοῦ μείζονος· ληφθέντες γὰρ οὕτως πρὸς πλείω χρήσιμοι ἂν εἴησαν.*

[b] Ibid. vi. p. 119, a. 32-b. 16. *ὁμοίως γὰρ ἔνδοξον τὸ ἀξιῶσαι, εἰ πᾶσα ἡδονὴ ἀγαθόν, καὶ λύπην πᾶσαν εἶναι κακόν, τῷ εἴ τις ἡδονὴ ἀγαθόν, καὶ λύπην εἶναί τινα κακόν— ἐν ἅπασι γὰρ ὁμοίως τὸ ἔνδοξον.*

[c] Ibid. b. 17-30. *δῆλον οὖν ὅτι κατασκευάζειν μόνον ἐκ τοῦ ἧττον ἔστιν.*

two subjects in different genera, but also two subjects of different degrees under the same genus. Thus, let the thesis be, Some science or cognition is a good. You will disprove this thesis, if you can show that prudence (*φρόνησις*) is not a good; for, if prudence, which in common opinion is most confidently held to be a good, be really not so, you may argue that, *à fortiori*, no other science can be so. Again, let the thesis be propounded with the assumption that, if it can be proved true or false in any one case, it shall be accepted as true or false in all universally (for example, that, if the human soul is immortal, all other souls are immortal also; or if not that, then none of the others): evidently, the propounder of such a thesis extends the particular into an universal. If he propounds his thesis affirmatively, you must try to prove the negative in some particular case; for this, under the conditions supposed, will be equivalent to proving an universal negative. If, on the other hand, he puts his thesis negatively, you will try to prove some particular affirmative; which (always under the given conditions) will carry the universal affirmative also.[a]

Suppose the respondent to propound his thesis indefinitely, not carrying the indication either of universal or particular; *e.g.*, Pleasure is good. This can be proved by showing either that all pleasure is good, or that some pleasure is good; while it can be refuted only through the universal negative—by showing that no pleasure is good.[b] But, if the thesis be divested of its indefinite character and propounded either as universal

[a] Topic. III. vi. p. 119, b. 31-p. 120, a. 5.

[b] Ibid. p. 120, a. 6-20: *ἀδιορίστου μὲν οὖν ὄντος τοῦ προβλήματος μοναχῶς ἀνασκευάζειν ἐνδέχεται—ἀναιρεῖν μὲν μοναχῶς ἐνδέχεται, κατασκευάζειν δὲ διχῶς*, &c.

or as particular, there will then be two distinct ways of refuting it. If it be farther specialized—*e.g.*, One pleasure only is good—there will be three ways of refuting: you may show either that all pleasures are good; or that no pleasure is good; or that more pleasures than one are good. If the proposition be specialized farther still —*e.g.*, Prudence alone among all the virtues is science,— there are four lines of argument open for refuting it: you may prove either that all virtue is science; or that no virtue is science; or that some other virtue (such as justice) is science; or that prudence is not science.[a]

In dealing with a particular proposition as thesis, still other *loci* already indicated for dealing with universal propositions will be available. You will run through the particulars comprised in the subject, distributed into genera and species. When you have produced a number of particulars successively to establish the universal, affirmative or negative, you are warranted in calling on the respondent either to admit the universal, or to produce on his side some adverse particular.[b] You will also (as was before recommended) distribute the predicate of the thesis into the various species which it comprehends. If no one of these species be truly affirmable of the subject, then neither can the genus be truly affirmable; so that you will have refuted the thesis, supposing it to be affirmative. If, on the contrary, any one of the species be truly affirmable of the subject, then the genus will also be truly affirmable; so that you will have refuted the thesis, supposing it to be negative. Thus, if the thesis propounded be, The

[a] Topic. III. vi. p. 120, a. 15-31.

[b] Ibid. a. 32-38: *ἄν τε γὰρ παντὶ φαίνηται ὑπάρχον ἄν τε μηδενί, πολλὰ προσνέγκαντι ἀξιωτέον καθόλου ὁμολογεῖν, ἢ φέρειν ἔνστασιν ἐπὶ τίνος οὐχ οὕτως.*

soul is a number: you divide number into its two species, odd and even, and prove that the soul is neither odd nor even; wherefore, it is not a number.[a]

IV.

After this long catalogue of *Loci* belonging to debate on propositions of Accident, Aristotle proceeds to enumerate those applicable to propositions of Genus and of Proprium. Neither Genus nor Proprium is often made subject of debate as such; but both of them are constituent elements of the debate respecting Definition, which is of frequent occurrence.[b] For that reason, both deserve to be studied.

When the thesis propounded affirms that A is genus of B, you will run over all the cognates of B, and see whether there is any one among them respecting which A cannot be affirmed as genus. If there be, this is a good argument against the thesis; for the genus ought to be predicable of all. Next, whether what is really no more than an accident is affirmed as genus, which ought to belong to the essence of the subject. Perhaps (*e.g.*) white is affirmed in the thesis as being genus of snow; but white cannot be truly so affirmed; for it is not of the essence of snow, but is only a quality or accident.[c] Examine whether the predicate A comes under the definition already given of an Accident,—that which may or may not be predicated of the subject; also, whether A and B both fall under the same one

[a] Topic. III. vi. p. 120, a. 37-b. 6. It would appear from the examples here given by Aristotle—*ὁ χρόνος οὐ κινεῖται, ὁ χρόνος οὔκ ἐστι κίνησις, ἡ ψυχὴ οὔκ ἐστιν ἀριθμός*, that he considers these propositions as either indefinite or particular.

[b] Ibid. IV. i. p. 120, b. 12: *μετὰ δὲ ταῦτα περὶ τῶν πρὸς τὸ γένος καὶ τὸ ἴδιον ἐπισκεπτέον· ἔστι δὲ ταῦτα στοιχεῖα τῶν πρὸς τοὺς ὅρους· περὶ αὐτῶν δὲ τούτων ὀλιγάκις αἱ σκέψεις γίνονται τοῖς διαλεγομένοις.*

[c] Ibid. b. 23-29.

out of the ten Categories or Predicaments. If B the subject comes under *Essentia*, or *Quale*, or *Ad Aliquid*, A the predicate ought also to belong to *Essentia*, or *Quale*, or *Ad Aliquid:* the species and the genus ought to come under the same Category.[a] If this be not the case in a thesis of Genus, the thesis cannot be maintained.

You are aware that the species always partakes of the genus, while the genus never partakes of the species; to *partake* meaning that the species includes the essence or definition of the genus, but the genus never includes the essence or definition of the species. You will examine, therefore, whether in the thesis propounded to you this condition is realized; if not, the thesis may be refuted. Suppose, *e.g.*, that it enunciates some superior genus as including *Ens* or *Unum*. If this were true, the genus so assigned would still partake of *Ens* and *Unum*; for *Ens* and *Unum* may be predicated of all existences whatever. Therefore what is enunciated in the thesis as a genus, cannot be a real genus.[b]

Perhaps you may find something respecting which the subject (species) may be truly affirmed, while the predicate (genus) cannot be truly affirmed. If so, the predicate is not a real genus. Thus, the thesis may enunciate *Ens* or *Scibile* as being the genus of *Opinabile*. But this last, the species or subject *Opinabile*, may be affirmed respecting *Non-Ens* also; while the predicates *Ens* or *Scibile* (given as the pretended genus of *Opinabile*) cannot be affirmed respecting *Non-Ens*. You can thus show that *Ens* or *Scibile* is not the real

[a] Topic. IV. i. p. 120, b. 36-p. 121, a. 9. *καθόλου δ' εἰπεῖν, ὑπὸ τὴν αὐτὴν διαίρεσιν δεῖ τὸ γένος τῷ εἴδει εἶναι.*

Aristotle here enunciates this as universally true, whereas if we turn to Categor. p. 11, a. 24, seq. we shall find him declaring it not to be universally true. Compare also Topic. IV. iv. p. 124, b. 15.

[b] Topic. IV. i. p. 121, a. 10-19.

genus of *Opinabile*.[a] The pretended species *Opinabile* (comprising as it does both *Ens* and *Non-Ens*) stretches farther than the pretended genus *Ens* or *Scibile*: whereas every real genus ought to stretch farther than any one or any portion of its constituent species.[b] The thesis may thus be overthrown, if there be any one species which stretches even equally far or is co-extensive with the pretended genus.[c]

It is a general truth that the same species cannot belong to two distinct genera, unless one of the two be subordinate to the other, or unless both of them be comprehended under some common higher genus. You will examine, therefore, whether there is any other genus, besides the predicate of the thesis, to which the subject of the thesis can be referred. If there be some other genus, not under either of the two conditions above indicated, the predicate enunciated by the thesis cannot be the real genus of the subject. Thus, if the thesis declares justice to be science (or to belong to the genus science), you may remark that there is another distinct genus (virtue) to which justice also belongs. In this particular case, however, it would be replied that science and virtue can both be referred to one and the same higher genus, viz., habit and disposition. Therefore the thesis, Justice is science, will not be truly open to objection on this ground.[d]

Again, if the predicate of the thesis be the true genus of the subject, all the higher genera in which the predicate is contained must also be predicated *in Quid* (as the predicate itself is) respecting the subject. This you must show by an induction of particular

[a] Topic. IV. i. p. 121, a. 20-26.

[b] Ibid. b. 1-14. *στοιχεῖον δὲ πρὸς ἅπαντα τὰ τοιαῦτα, τὸ ἐπὶ πλέον τὸ γένος ἢ τὸ εἶδος καὶ τὴν διαφορὰν λέγεσθαι· ἐπ' ἔλαττον γὰρ καὶ ἡ διαφορὰ τοῦ γένους λέγεται.*

[c] Ibid. b. 4.

[d] Ibid. ii. p. 121, b. 24, seq.

instances, no counter-instance being producible.[a] If the thesis enunciated does not conform to this condition, you will have a good argument against it. You will also run over the sub-species that are comprehended in the subject of the thesis, considered as a genus; and you will examine whether the predicate of the thesis (together with all its superior genera) is predicable essentially or *in Quid* of all these sub-species. If you can find any one among these sub-species, of which it is not essentially predicable, the predicate of the thesis is not the true genus of the subject;[b] the like also, if the definitions of these genera are not predicable of the subject or its sub-species.[c]

Perhaps the thesis may enunciate as a genus what is really nothing more than a differentia. It may also enunciate the differentia either as a part of the genus or as a part of the species; or it may enunciate the genus either as a part of the differentia or as a part of the species. All these are attackable. The differentia is not a genus, nor does it respond to the question *Quid est*, but to the question *Quale quid est*. It is always either more extensive than the species, or co-extensive therewith.[d] If none of the differentiæ

[a] Topic. IV. ii. p. 122, a. 5-19. *ὅτι δὲ ἑνὸς ἐν τῷ τί ἐστι κατηγορουμένου πάντα τὰ λοιπά, ἅπερ κατηγορῆται, ἐν τῷ τί ἐστι κατηγορηθήσεται, δι' ἐπαγωγῆς ληπτέον.*

[b] Ibid. a. 21-b. 6.

[c] Ibid. b. 7-11. *εἰ οὖν που διαφωνεῖ, δῆλον ὅτι οὐ γένος τὸ ἀποδοθέν.*

[d] Ibid. b. 12-p. 123, a. 10. *οὐδὲ δοκεῖ μετέχειν ἡ διαφορὰ τοῦ γένους· πᾶν γὰρ τὸ μετέχον τοῦ γένους ἢ εἶδος ἢ ἄτομόν ἐστιν. ἀεὶ γὰρ ἡ διαφορὰ ἐπ' ἴσης ἢ ἐπὶ πλεῖον τοῦ εἴδους λέγεται.—ἐπὶ πλέον τε γὰρ τὸ γένος τῆς διαφορᾶς δεῖ λέγεσθαι, καὶ μὴ μετέχειν τῆς διαφορᾶς.*

As an example to illustrate the enclosing of the genus within the species (*εἰ τὸ γένος εἰς τὸ εἶδος ἔθηκεν*), Aristotle cites a definition given by Plato, who defined *τὴν κατὰ τόπον κίνησιν*, as *φοράν*. Now *φορὰ* is less extensive in its meaning than *ἡ κατὰ τόπον κίνησις*, which includes *βάδισις* and other terms of motion apart from or foreign to *φορά*.—Example of enunciating differentia as a genus is, if immortal be given as the genus to which a god belongs. Immortal is the differentia belonging to *ζῷον*, and constituting therewith the species god.—Example of enclosing

belonging to a genus can be predicated of a species, neither can the genus itself be predicated thereof. Thus, neither odd nor even can be predicated of the soul; accordingly, neither can the genus (number) be predicated of the soul.[a] If the species be *prius naturâ*, so that when it disappears the enunciated genus disappears along with it, this cannot be the real genus; nor, if the enunciated genus or differentia can be supposed to disappear and yet the species does not disappear along with them.[b] If the species partakes of (includes in its essence) something contrary to the enunciated genus, this last cannot be the real genus; nor, if the species includes something which cannot possibly belong to what is in that genus. Thus, if the soul partakes of (or includes in its essence) life, and if no number can possibly live, the soul cannot be a species of number.[c]

Again, the generic term and the specific term ought to be univocal in signification. You must examine (according to the tests indicated in the First Book of the Topica) whether it be taken equivocally in the thesis. If it be so, you have a ground of attack, and also if it be taken metaphorically; for every genus ought to be enunciated in the proper sense of the term, and no metaphor can be allowed to pass as a genus.[d] Note further that every true genus has more than one distinct species. You will, therefore, examine whether any

the differentia in the genus is, if odd be given as the essence of number (*ὅπερ ἀριθμόν*).—Example of enclosing differentia in the species is, if immortal be put forward as the essence of a god (*ὅπερ θεόν*).—Example of enclosing the genus in the differentia is, number given as the essence of the odd.—Example of enunciating the genus as a differentia is, when change of place is given as the differentia of *φορά*.

[a] Topic. IV. ii. p. 123, a. 11-14.

[b] Ibid. a. 14-19.

[c] Ibid. iii. a. 20-26.

[d] Ibid. a. 27-37. *σκοπεῖν δὲ καὶ εἰ τὸ μεταφορᾷ λεγόμενον ὡς γένος ἀποδέδωκεν, οἷον τὴν σωφροσύνην συμφωνίαν· πᾶν γὰρ γένος κυρίως κατὰ τῶν εἰδῶν κατηγορεῖται, ἡ δὲ συμφωνία κατὰ τῆς σωφροσύνης οὐ κυρίως ἀλλὰ μεταφορᾷ· πᾶσα γὰρ συμφωνία ἐν φθόγγοις.*

other species, besides the subject of the thesis, can be suggested as belonging to the predicate of the thesis. If none, that predicate cannot be the true genus of the subject.[a]

Several *loci* are furnished by Contraries, either to the species or the genus. If there be something contrary to the species, but nothing contrary to the genus, then that which is contrary to the species ought to be included under the same genus as the species itself; but, if there be something contrary to the species, and also something contrary to the genus, then that which is contrary to the species ought to be included in that which is contrary to the genus. Each of these doctrines you will have to make good by induction of particular cases.[b] If that which is contrary to the species be a genus itself (*e.g.*, *bonum*) and not included in any superior genus, then the like will be true respecting the species itself: it will not be included in any genus; and the predicate of the thesis will not be a true genus. *Bonum* and *malum* are not included in any common superior genus; each is a genus *per se*.[c] Or suppose that the subject (species) of the thesis, and the predicate (genus) of the thesis, have both of them contraries; but that in the one there is an intermediate between the two contraries, and in the other, not. This shows that the predicate cannot be the true genus of the species; for, wherever there is an intermediate between the two contraries of the species, there also is an intermediate between the two contraries of the genus; and *vice versâ*.[d] If there be an intermediate between the two contraries of the species, and also an

[a] Topic. IV. iii. p. 123, a. 30.
[b] Ibid. b. 1-8. *φανερὸν δὲ τούτων ἕκαστον διὰ τῆς ἐπαγωγῆς.*
[c] Ibid. b. 8-12. [d] Ibid. b. 12, seq.

intermediate between the two contraries of the genus, you will examine whether both intermediates are of like nature, designated by analogous terms. If it be not so (if, *e.g.*, the one intermediate is designated by a positive term, and the other only by a negative term), you will have ground for contending against the thesis, that the predicate enunciated therein is not the true genus of the subject. At any rate, this is a probable (ἔνδοξον) dialectical argument—to insist upon analogy between the two intermediates; though there are some particular cases in which the doctrine does not hold.[a]

Again, suppose different conditions: that there is no contrary to the genus, but that there is a contrary to the species. You will examine whether not merely the contrary of the species, but also the intermediate between its two contraries, is included in the same genus; for, if the two contraries are included therein, the intermediate ought also to be included. This is a line of argument *probable* (*i.e.*, conformable to general presumption, and recommendable in a dialectical debate), though there are not wanting examples adverse to it: thus, excess and defect are included in the same genus evil, but the moderate or measured (τὸ μέτριον) is not in the genus evil, but in the genus good.[b] We must remark, moreover, that though it be a probable dialectical argument, that, wherever the genus has a contrary, the species will also have a contrary, yet there are cases adverse to this principle. Thus, sickness in general has for its contrary health in general; but par-

[a] Topic. IV. iii. p. 123, b. 17-23: ἔνστασις τούτου ὅτι ὑγιείας καὶ νόσου οὐδὲν μεταξύ, κακοῦ δὲ καὶ ἀγαθοῦ· ἢ εἰ ἔστι μέν τι ἀμφοῖν ἀνὰ μέσον, καὶ τῶν εἰδῶν καὶ τῶν γενῶν, μὴ ὁμοίως δέ, ἀλλὰ τῶν μὲν κατ' ἀπόφασιν, τῶν δ' ὡς ὑποκείμενον. ἔνδοξον γὰρ τὸ ὁμοίως ἀμφοῖν, καθάπερ ἐπ' ἀρετῆς καὶ κακίας, καὶ δικαιοσύνης καὶ ἀδικίας· ἀμφοῖν γὰρ κατὰ ἀπόφασιν τὰ ἀνὰ μέσον.

[b] Ibid. b. 23-30.

ticular species of sickness (such as fever, ophthalmia, gout, &c.) have no contrary.[a]

Such will be your way of procedure, if the thesis propounded be Affirmative, and if you have to make out a negative against it. But if, on the contrary, the thesis be Negative, so that you have to make out an affirmative against it, you have then three lines of procedure open. 1. The genus may have no contrary, while the species has a contrary: in that case, you may perhaps be able to show that the contrary of the species (subject) is included in the predicate of the thesis (genus); if so, then the species also will be included therein. 2. Or, if you can show that the intermediate between the species and its contrary is included in the predicate (genus), then that same genus will also include the species and its contrary; for, wherever the intermediate is, there also are the two extremes between which it is intermediate. 3. Lastly, if the genus has a contrary as well as the species, you may be able to show that the contrary of the species is included in the contrary of the genus; assuming which to be the case, then the species itself will be included in the genus.[b] These are the three modes of procedure, if your task is to make out the negative.

If the genus enunciated by the thesis be a true one, all the Derivatives and Collaterals of the predicate will be fit and suitable for those of the subject. Thus, if justice be a sort of science, justly will be scientifically, and the just man will be a scientific man. This *locus* is useful to be kept in mind, whether you have to make out an affirmative or a negative.[c] You may reason in the same way about the *Analoga* of the predicate and

[a] Topic. IV. iii. p. 123, b. 30-37.
[b] Ibid. p. 124, a. 1-9.
[c] Ibid. a. 10-14.

the subject; about the productive and destructive causes of each; the manifestations present, past, and future, of each, &c.[a]

When the opposite of the species (subject) is Privative, the thesis will be open to attack in two ways. 1. If the privative opposite be contained in the predicate, the subject itself will not be contained therein; for it is a general truth that a subject and its privative opposite are never both of them contained in the same lowest genus: thus, if vision is sensible perception, blindness is *not* sensible perception. 2. If both the species and the genus have privative opposites, then if the privative opposite of the species be contained in the privative opposite of the genus, the species itself will also be contained in the genus; if not, not. Thus, if blindness be an inability of sensible perception, vision will be a sensible perception. This last *locus* will be available, whether you are making out an affirmative or a negative.[b]

If the predicate of the thesis be a true genus, you may convert the thesis simply, having substituted for the predicate the denial of its Contradictory; if not, not. *Vice versâ*, if the new proposition so formed be true, the predicate of the thesis will be a true genus; if not, not. Thus, if good be the true genus of pleasurable, nothing that is not good will be pleasurable. This *locus* also will serve both for making out an affirmative and for making out a negative.[c]

If the subject (species) of the thesis be a Relative, you will examine whether the predicate (genus) be relative also; if not, it will not be the true genus of the subject. The converse of this rule, however, will

[a] Topic. IV. iv. p. 124, a. 15-34. [b] Ibid. a. 35-b. 6.
[c] Ibid. b. 7-14: *πάλιν ἐπὶ τῶν ἀποφάσεων σκοπεῖν ἀνάπαλιν*, &c.

not hold; and indeed the rule itself is not absolutely universal.[a] You may also argue that, if the correlate of the genus be not the same as the correlate of the species, the genus cannot be truly predicated of that species: thus, half is the correlate of double, but half is not the proper correlate of multiple; therefore, multiple is not the true genus of double. But your argument may here be met by contradictory instances; thus, cognition has reference to the *cognitum*, but *habitus* and *dispositio* (the genera to which *cognitio* belongs) do not refer to *cognitum*, but to *anima*.[b] You may also examine whether the correlate, when applied to the genus, is put in the same case (*e.g.*, genitive, dative, &c.) as when it is applied to the species: if it be put into a different case, this affords presumption that the genus is not a true genus; though here again instances may be produced showing that your presumption will not hold universally. Farther, you will observe whether the correlates thus similarly inflected reciprocate like the species and genus; if not, this will furnish you with the same adverse presumption.[c]

Again, examine whether the correlate of the genus is genus to the correlate of the species; if it be not so, you may argue that the genus is not truly predicated. Thus, if the thesis affirms that *perceptio* is the genus of *cognitio*, it will follow that *percipibile* is the genus of *cognoscibile*. Now this cannot be maintained; for there are some *cognoscibilia* which are not perceivable, *e.g.*, some *cogitabilia* (*intelligibilia*, *νοητά*). Since therefore *percipibile* is not the true genus of *cognoscibile*, neither can *perceptio* be the true genus of *cognitio*.[d]

[a] Topic. IV. iv. p. 124, b. 15-22.
[b] Ibid. b. 23-34.
[c] Ibid. b. 35, seq.
[d] Ibid. p. 125, a. 25-32: *ὁρᾶν δὲ καὶ εἰ τοῦ ἀντικειμένου τὸ ἀντικείμενον γένος, οἷον εἰ τοῦ διπλασίου τὸ πολλαπλάσιον*

Suppose the thesis predicates of memory that it is —a continuance of cognition. This will be open to attack, if the predicate be affirmed as the genus (or even as the accident) of the subject. For every continuance must be *in* that which continues. But memory is of necessity *in* the soul; it cannot therefore be *in* cognition.[a] There is another ground on which the thesis will be assailable, if it defines memory to be—a habit or acquirement retentive of belief. This will not hold, because it confounds habit or disposition with act; which last is the true description of memory. The opposite error will be committed if the respondent defines perceptivity to be a—movement through or by means of the body. Here perceptivity, which is a habit or disposition, is ranked under movement, which is the act exercising the same, *i.e.*, perceptivity in actual exercise.[b] Or the mistake may be made of ranking some habit or disposition under the power

καὶ τοῦ ἡμίσεος τὸ πολλοστημόριον· δεῖ γὰρ τὸ ἀντικείμενον τοῦ ἀντικειμένου γένος εἶναι.

We must take note here of the large sense in which Aristotle uses 'Αντικείμενα—*Opposita*, including as one of the four varieties *Relata* and *Correlata* = *Relativé-Opposita* (to use a technical word familiar in logical manuals). I have before (*supra*, p. 150) remarked the inconvenience of calling the Relative *opposite* to its Correlate; and have observed that it is logically incorrect to treat *Relata* as a species or mode of the genus *Opposita*. The reverse would be more correct: we ought to rank *Opposita* as a species or mode under the genus *Relata*. Since Aristotle numbers *Relata* among the ten Categories, he ought to have seen that it cannot be included as a subordinate under any superior genus.

[a] Topic. IV. iv. p. 125, b. 6: οἷον εἰ τὴν μνήμην μονὴν ἐπιστήμης εἶπεν. πᾶσα γὰρ μονὴ ἐν τῷ μένοντι καὶ περὶ ἐκεῖνο, ὥστε καὶ ἡ τῆς ἐπιστήμης μονὴ ἐν τῇ ἐπιστήμῃ. ἡ μνήμη ἄρα ἐν τῇ ἐπιστήμῃ, ἐπειδὴ μονὴ τῆς ἐπιστήμης ἐστίν. τοῦτο δ' οὐκ ἐνδέχεται· μνήμη γὰρ πᾶσα ἐν ψυχῇ. A definition similar to this is found in the Kratylus of Plato, p. 437, B: ἔπειτα δὲ ἡ μνήμη παντί που μηνύει ὅτι μονή ἐστιν ἐν τῇ ψυχῇ, ἀλλ' οὐ φορά.

[b] Ibid. v. p. 125, b. 15-19. οἷον τὴν αἴσθησιν κίνησιν διὰ σώματος· ἡ μὲν γὰρ αἴσθησις ἕξις, ἡ δὲ κίνησις ἐνέργεια. This, too, seems to allude to Plato's explanation of *αἴσθησις* in the Timæus, pp. 43, C, 64, B: compare also the Platonic or pseudo-Platonic Definitiones, p. 414, C.

consequent on the possession thereof, as if this power were the superior genus: thus the respondent may define gentleness to be a continence of anger; courage, a continence of fears; justice, a continence of appetite of lucre. But the genus here assigned is not a good one: for a man who feels no anger is called gentle; a man who feels no fear is called courageous; whereas the continent man is he who feels anger or fear, but controls them. Such controlling power is a natural consequence of gentleness and courage, insomuch that, if the gentle man happened to feel anger, or the courageous man to feel fear, each would control these impulses; but it is no part of the essence thereof, and therefore cannot be the genus under which they fall.[a] A like mistake is made if pain be predicated as the genus of anger, or supposition as the genus of belief. The angry man doubtless feels pain, but his pain precedes his anger in time, and is the antecedent cause thereof; now the genus can never precede its species in time. So also a man may have the same supposition sometimes with belief, sometimes without it; accordingly, supposition cannot be the genus of belief any more than the same animal can be sometimes a man, sometimes a brute.[b] And indeed the same negative conclusion would follow, even if we granted that every supposition was always attended with belief. For, in that case, supposition and belief would be co-extensive

[a] Topic. IV. v. p. 125, b. 20-27.

[b] Waitz, in his notes (p. 478), says that Aristotle is here in the wrong. But I do not agree with Waitz. Aristotle considers πίστις to be an accidental accompaniment of ὑπόληψις, not a species thereof. It may be present or absent without determining any new specific name to ὑπόληψις, which term has reference only to the intellectual or conceptive part of the mental supposition. At least there seems to be nothing contradictory or erroneous in what Aristotle here says, though he does not adhere everywhere to this restricted meaning of ὑπόληψις.

terms; but the generic term must always be more extensive than its specific.[a]

You will farther examine whether the predicate of the thesis be of a nature to inhere in the same substance as the subject. If it be not, it cannot be truly predicated thereof, either as genus or even as accident. White (species) and colour (genus) are of a nature to inhere or belong to the same substance. But, if the thesis declares that shame is a species of fear, or that anger is a species of pain, you may impugn it on the ground that shame belongs to the reasoning element in man, fear to the courageous or energetic element; and that pain belongs to the appetitive element, anger to the courageous. This proves that fear can neither be the genus nor the accident of shame; that pain can neither be the genus nor the accident of anger.[b]

Suppose the thesis declares that animal is a species under the genus *visibile* or *percipibile*. You may oppose it by pointing out that animal is only *visibile secundum quid*, or partially; that is, only so far as regards body, not as regards mind. But the species always partakes of its genus wholly, not partially or *secundum quid*; thus, man is not partially animal, but wholly or essentially animal. If what is predicated as the genus be not thus essentially partaken, it cannot be a true genus; hence neither *visibile* nor *percipibile* is a true genus of animal.[c]

Sometimes what is predicated as the genus is, when

[a] Topic. IV. v. p. 125, b. 28-p. 126, a. 2.

[b] Ibid. p. 126, a. 3-16. Compare V. iv. p. 133, a. 31. Aristotle appears here to recognize the Platonic doctrine as laid down in the Republic and Timæus, asserting either three distinct parts of the soul, or, rather, three distinct souls. In the treatise De Animâ (III. ix. p. 432, a. 25; I. v. p. 411, b. 25), he dissents from and impugns this same doctrine.

[c] Topic. IV. v. p. 126, a. 17-25.

compared to its species, only as a part to the whole; which is never the case with a true genus. Some refer animal to the genus living body; but body is only part of the whole animal, and therefore cannot be the true genus thereof.[a] Sometimes a species which is blameworthy and hateful, or a species which is praiseworthy and eligible, may be referred to the power or capacity from which it springs, as genus; thus, the thief, a blameworthy and hateful character, may be referred to the predicate—capable of stealing another man's property. But this, though true as a predicate, is not the true genus; for the honest man is also capable of so acting, but he is distinguished from the thief by not acting so, nor having the disposition so to act. All power and capacity is eligible; if the above were the true genus of thief, it would be a case in which power and capacity is blameworthy and hateful. Neither, on the other hand, can any thing in its own nature praiseworthy and eligible, be referred to power and capacity as its genus; for all power and capacity is praiseworthy and eligible not in itself or its own nature, but by reason of something else, namely, its realizable consequences.[b]

Again, you may detect in the thesis sometimes the mistake of putting under one genus a species which properly comes under two genera conjointly, not subalternate one to the other; sometimes, the mistake of predicating the

[a] Topica, IV. v. p. 126, a. 26-29.

[b] Ibid. a. 30-b. 6: *ὁρᾶν δὲ καὶ εἴ τι τῶν ψεκτῶν ἢ φευκτῶν εἰς δύναμιν ἢ τὸ δυνατὸν ἔθηκεν, οἷον τὸν σοφιστὴν ἢ διάβολον ἢ κλέπτην τὸν δυνάμενον λάθρα τὰ ἀλλότρια κλέπτειν.*

The general drift of Aristotle is here illustrated better by taking the thief separately, apart from the other two. But we must notice here the proof of his temper or judgment concerning the persons called Sophists, when we find him grouping them in the bunch of *ψεκτὰ* and *φευκτὰ* along with thieves. The majority of his uninstructed contemporaries would probably have agreed in this judgment, but they would certainly have enrolled Aristotle himself among the Sophists thus depreciated.

genus as a differentia, or the differentia as a genus.[a] Sometimes, also, the subject in which the attribute or affection resides is predicated as if it were the genus of such affection; or, *è converso*, the attribute or affection is predicated as the genus of the subject wherein it resides; *e.g.*, when breath or wind, which is really a movement of air, is affirmed to be air put in motion, and thus constituted as a species under the genus air; or when snow is declared to be water congelated; or mud, to be earth mixed with moisture.[b] In none of these cases is the predicate a true genus; for it cannot be always affirmed of the subject.

Or perhaps the predicate affirmed as genus may be no genus at all; for nothing can be a genus unless there are species contained under it; *e.g.*, if the thesis declare white to be a genus, this may be impugned, because white objects do not differ *in specie* from each other. Or a mere universal predicate (such as *Ens* or *Unum*) may be put forward as a genus or differentia; or a simple concomitant attribute, or an equivocal term, may be so put forward.[c]

Perhaps it may happen that the subject (species) and the predicate (genus) of the thesis may each have a contrary term; and that in each pair of contrary terms one may be better, the other worse. If, in that case, the better species be referred to the worse genus, or *vice versâ*, this will render the thesis assailable. Or perhaps the species may be fit to be referred equally to both the contrary genera; in which case, if the thesis should refer it to the worse of the two, that will be a ground of objection. Thus, if the soul be referred to the genus *mobile*, you are at liberty to object that it is equally referable to the

[a] Topica, IV. v. p. 126, b. 7-33. [b] Ibid. b. 34-p. 127, a. 19.
[c] Ibid. vi. p. 127, a. 20-b. 7.

genus *stabile*: and that, as the latter is the better of the two, it ought to be referred to the better in preference to the worse.[a]

There is a *locus* of More and Less, which may be made available in various ways. Thus, if the genus predicated admits of being graduated as more or less, while the species of which it is predicated does not admit of such graduation, you may question the applicability of the genus to the species.[b] You may raise the question also, if there be any thing else which looks equally like the true genus, or more like it than the genus predicated by the thesis. This will happen often, when the essence of the species includes several distinct elements; *e.g.*, in the essence of anger, there is included both pain (an emotional element), and the supposition or belief of being undervalued (an intellectual element); hence, if the thesis ranks anger under the genus pain, you may object that it equally belongs to the genus supposition.[c] This *locus* is useful for raising a negative question, but will serve little for establishing an affirmative. Towards the affirmative, you will find advantage in examining the subject (species) respecting which the thesis predicates a given genus; for, if it can be shown that this supposed species is no real species but a genus, the genus predicated thereof will be *à fortiori* a genus.[d]

Some think (says Aristotle)[e] that Differentia as well as Genus is predicated essentially respecting the Species.

[a] Topica, IV. vi. p. 127, b. 8-17.

[b] Ibid. b. 18-25: *ἔτι ἐκ τοῦ μᾶλλον καὶ ἧττον, ἀνασκευάζοντι μέν, εἰ τὸ γένος δέχεται τὸ μᾶλλον, τὸ δ' εἶδος μὴ δέχεται μήτ' αὐτὸ μήτε τὸ κατ' ἐκεῖνο λεγόμενον.*

[c] Ibid. b. 26-37: *χρήσιμος δ' ὁ τόπος ἐπὶ τῶν τοιούτων μάλιστα ἐφ' ὧν πλείω φαίνεται τοῦ εἴδους ἐν τῷ τί ἐστι κατηγορούμενα, καὶ μὴ διώρισται, μήδ' ἔχομεν εἰπεῖν ποῖον αὐτῶν γένος,* &c.

[d] Ibid. b. 38-p. 128, a. 12.

[e] Ibid. a. 20, seq.: *ἐπεὶ δὲ δοκεῖ τισὶ καὶ ἡ διαφορὰ ἐν τῷ τί ἐστι τῶν εἰδῶν κατηγορεῖσθαι, χωριστέον τὸ γένος ἀπὸ τῆς διαφορᾶς,* &c.

Accordingly, Genus must be discriminated from Differentia. For such discrimination the following characteristics are pointed out:—1. Genus has greater extent in predication than Differentia. 2. In replying to the enquiry, *Quid est?* it is more suitable and significant to declare the Genus than the Differentia. 3. Differentia declares a quality of Genus, and therefore presupposes Genus as already known; but Genus does not in like manner presuppose Differentia. If you wish to show that belief is the genus to which cognition belongs, you must examine whether the *cognoscens* believes *quâ cognoscens*. If he does so, your point is made out.[a]

Wherever a predicate is universally true of its subject, while the proposition is not true if simply converted, (*i.e.*, wherever the predicate is of larger extension than the subject), there is difficulty in distinguishing it from a genus. Accordingly, when you are respondent, maintaining the affirmative side, you will use such predicate as if it were a genus; but, when you are assailant, you will not allow the respondent to do so. You may quote against him the instance of *Non-Ens*; which is predicable of every thing generated, but which is not a genus, since it has no species under it.[b]

V.

Aristotle passes, in the Fifth book of the Topica, to those debates in which the thesis set up declares the predicate as Proprium of the subject.

A Proprium may belong to its subject either *per se* and *semper*, or relatively to something else and occa-

[a] Topica, IV. vi. p. 128, a. 35. If you are trying to show τὴν ἐπιστήμην ὅπερ πίστιν, you must examine εἰ ὁ ἐπιστάμενος ᾗ ἐπίσταται πιστεύει· δῆλον γὰρ ὅτι ἡ ἐπιστήμη πίστις ἄν τις εἴη.

[b] Ibid. a. 38-b. 9.

sionally or sometimes. It is a proprium *per se* of man to be an animal by nature tractable. It is a relative proprium of the soul in regard to the body, to exercise command; of the body in regard to the soul, to obey command. It is a proprium *semper* of a god, to be immortal; it is an occasional *proprium* (*i.e.*, sometimes) of this or that man, to be walking in the market-place.[a] When the proprium is set out relatively to something else, the debate must involve two questions, and may involve four. Thus, if the thesis affirms that it is a proprium of man relatively to horse (discriminating man from horse) to be by nature two-footed, you may (as opponent) either deny that man is two-footed, or affirm that horse is two-footed; or you may go farther and affirm that man is by nature four-footed, or deny that horse is by nature four-footed. If you can succeed in showing any one of these four, you will have refuted the thesis.[b]

The Proprium *per se* discriminates its subject from everything else, and is universally true thereof; the *relative* Proprium discriminates its subject only from some other assignable subject. The relative Proprium may be either constant and universally true, or true with exceptions—true and applicable in the ordinary course of things: it may be tested through those *Loci* which have been enumerated as applicable to the Accident. The Proprium *per se*, and the *constant* Proprium, have certain *Loci* of their own, which we shall now indicate. These are the most logical (*sensu*

[a] Topica, V. i. p. 128, b. 14-21. That which Aristotle calls Proprium *per se* is a proprium of the subject as much *relative* as what he calls specially the *relative* Proprium. The Proprium *per se* discriminates the subject from everything else; the *relative* Proprium discriminates it from some given correlate.

[b] Ibid. b. 22-33.

Aristotelico) or suitable for Dialectic; furnishing the most ample matter for debates.[a]

Aristotle distinguishes (1) those cases in which the alleged proprium is a true proprium, but is incorrectly or informally set out in the thesis, from those (2) in which it is untruly predicated, or is no proprium at all.

To set out a proprium well, that which is predicated ought to be clearer and better known than the subject of which it is predicated, since the purpose of predicating the proprium is to communicate knowledge.[b] If it be more obscure or less known, you may impugn the thesis as bad in form, or badly set out. Thus, if the thesis declares, as a proprium of fire, that fire is of all things the most like to the soul, this is not well set out, because the essence of the soul is not so well known as the essence of fire. Moreover, the fact that the predicate belongs to the subject, ought to be better known even than the subject itself; for whoever is ignorant that A belongs to B at all, cannot possibly know that A is the proprium of B.[c] Thus, if the thesis declare, as proprium of fire, that it is the first or most universal subject in which it is the nature of soul to be found, the predicate is here doubly unknowable: first, the hearer does not know that the soul is found in fire at all; next, he does not know that fire is the *first* subject in which soul is found. On the other hand, the respondent will repel your attack

[a] Ibid. b. 34-p. 129, a. 35. *τῶν δ' ἰδίων ἐστὶ λογικὰ μάλιστα·* &c. He explains presently what he means by *λογικά — λογικὸν δὲ τοῦτ' ἐστὶ πρόβλημα, πρὸς ὃ λόγοι γένοιντ' ἂν καὶ συχνοὶ καὶ καλοί.* The distinctions in this paragraph are not very sharply drawn.

[b] Topica, V. i. p. 129, b. 7: *γνώσεως γὰρ ἕνεκα τὸ ἴδιον ποιούμεθα· διὰ γνωριμωτέρων οὖν ἀποδοτέον· οὕτω γὰρ ἔσται κατανοεῖν ἱκανῶς μᾶλλον.*

He repeats the same dictum, substantially, in the next page, p. 130, a. 4: *τὸ γὰρ ἴδιον τοῦ μαθεῖν χάριν ἀποδίδοται*; and, again, p. 131, a. 1.

[c] Ibid. b. 15: *ὁ μὴ γὰρ εἰδὼς εἰ τῷδ' ὑπάρχει, οὐδ' εἰ τῷδ' ὑπάρχει μόνῳ γνωριεῖ.*

if he can show that his proprium is more knowable in both the two above-mentioned ways. If, for example, he declares as thesis, To have sensible perception is the proprium of an animal, here the proprium is both well known in itself, and well known as belonging to the given subject. Accordingly, it is well set out, as far as this condition is concerned.[a]

A second condition of its being well set out is, that it shall contain neither equivocal term nor equivocal or amphibolical proposition. Thus, if the thesis declares, To perceive is the proprium of an animal, it is equivocal; for it may mean either to have sensible perception, or to exercise sensible perception actually. You may apply the test to such a thesis, by syllogizing from one or both of these equivocal meanings. The respondent will make good his defence, if he shows that there is no such equivocation: as, for example, if the thesis be, It is a proprium of fire to be the body most easily moved into the upper region; where there is no equivocation, either of term or proposition.[b] Sometimes the equivocation may be, not in the name of the proprium itself but, in the name of the subject to which it is applied. Where this last is not *unum et simplex* but equivocal, the thesis must specify which among the several senses is intended; and, if that be neglected, the manner of setting out is incorrect.[c]

Another form of the like mistake is, where the same term is repeated both in the predicate and in the subject; which is often done, both as to Proprium and as to Definition, though it is a cause of obscurity, as well as a tiresome repetition.[d] The repetition may be made in two ways: either directly, by the same term

[a] Topica, V. ii. p. 129, b. 21-29.
[b] Ibid. b. 30-p. 130, a. 13.
[c] Ibid. p. 130, a. 15-28.
[d] Ibid. a. 30-34. *παράττει γὰρ τὸν ἀκούοντα πλεονάκις λεχθέν—καὶ πρὸς τούτοις ἀδολεσχεῖν δοκοῦσιν.*

occurring twice; or indirectly, when the second term given is such that it cannot be defined without repeating the first. An example of direct repetition is, Fire is a *body* the rarest among *bodies* (for proprium of fire). An example of indirect repetition is, Earth is a *substance* which tends most of all *bodies* downwards to the lowest region (as proprium of earth); for, when the respondent is required to define *bodies*, he must define them—such and such *substances*.[a] An example free from objection on this ground is, Man is an animal capable of receiving cognition (as proprium of man).

Another mode of bad or incorrect setting out is, when the term predicated as proprium belongs not only to the subject, but also to all other subjects. Such a proposition is useless; for it furnishes no means of discriminating the subject from anything; whereas discrimination is one express purpose of the Proprium as well as of the Definition.[b] Again, another mode is, when the thesis declares several propria belonging to the same subject, without announcing that they are several. As the definer ought not to introduce into his definition any words beyond what are required for declaring the essence of the subject, so neither should the person who sets out a proprium add any words beyond those requisite for constituting the proprium. Thus, if the thesis enunciates, as proprium of fire, that it is the thinnest and lightest body, here are two propria instead of one. Contrast with this another proprium, free from the objection just pointed out—Moist is that which may assume every variety of figure.[c]

[a] Topica, V. ii. p. 130, a. 34-b. 5. *ἐν γὰρ καὶ ταὐτόν ἐστι σῶμα καὶ οὐσία τοιαδί· ἔσται γὰρ οὗτος τὸ οὐσία πλεονάκις εἰρηκώς.*

[b] Ibid. b. 12: *ἀχρεῖον γὰρ ἔσται τὸ μὴ χωρίζον ἀπό τινων, τὸ δ' ἐν τοῖς ἰδίοις λεγόμενον χωρίζειν δεῖ, καθάπερ καὶ τὰ ἐν τοῖς ὅροις.*

[c] Ibid. b. 23-37.

A farther mistake is, when the predicate declaring the proprium includes either the subject itself or some species comprehended under the subject; for example, when we are told, as a proprium of animal, that animal is a substance of which man is a species. We have already seen that the proprium ought to be better known than its subject; but man is even less known (posterior in respect to cognition) than animal, because it is a species under the genus animal.[a]

Again, our canon—That the Proprium should be better known than its subject, or should make the subject better known—will be violated in another way, if the proprium enunciated be something opposite to the subject, or in any other way *simul naturâ* as compared with the subject; and still more, if it be *posterius naturâ* as compared with the subject. Thus, if a man enunciates, as proprium of good, that good is that which is most opposite to evil, his proprium will not be well or correctly set out.[b]

Perhaps, again, the thesis may enunciate as proprium what is not constantly appurtenant to the subject, but is sometimes absent therefrom; or, intending to enunciate an occasional proprium, it may omit to specify the qualifying epithet *occasional*. In either case the proprium is not well set out, and a ground is furnished for censure, which ought always to be avoided.[c]

Moreover, the proprium will not be well set out, if it be such as does not necessarily belong to the subject,

[a] Topica, V. iii. p. 130, b. 38.

[b] Ibid. p. 131, a. 12-26. This *locus* is not clear or satisfactory, as Alexander remarks in Scholia (p. 284, b. 12-23, Br.). He says that it may pass as an *ἔνδοξον*—something sufficiently plausible to be employed in Dialectic. In fact, Alexander virtually controverts this *locus* in what he says a little farther down (Schol. p. 285, a. 31), that the Proprium is always *simul naturâ* with its subject.

[c] Ibid. a. 27-b. 18. *οὐκ ἔσται καλῶς κείμενον τὸ ἴδιον—οὔκουν δοτέον ἐστὶν ἐπιτιμήσεως σκῆψιν.*

but is only shown by the evidence of sense to belong thereunto. In this case, when the subject is out of the reach of sensible perception, no one knows whether the supposed proprium still continues as its attribute. Thus, suppose the thesis to enunciate as a proprium of the sun, that it is the brightest star borne in movement above the earth: the fact that it is so borne in movement above the earth is one that we know by sensible perception only; accordingly, after the sun sets and we cease to see it, we cannot be sure that it continues to be borne in movement. If a proprium knowable as such by sense be chosen, it ought to be one which is also knowable independently, as belonging to the subject by necessity. Thus, if a man enunciates, as proprium of superficies, that superficies is what first becomes coloured or first receives colour, this is a proprium well set out. For we know clearly that it must always belong to a superficies; though we may also obtain the additional evidence of sense, by looking at some perceivable body.[a]

Perhaps too the thesis may enunciate the Definition as if it were a Proprium; which is another ground for objecting that the proprium is not well set out. Thus, the thesis may enunciate, as proprium of man, that man is a land animal walking on two feet. Here what is given as proprium is the essence of man, which never ought to be affirmed in the proprium. To set out the proprium well, the predicate ought to reciprocate and

[a] Topica, V. iii. p. 131, b. 19-36. *οἷον ἐπεὶ ὁ θέμενος ἐπιφανείας ἴδιον ὃ πρῶτον κέχρωσται, αἰσθητῷ μέν τινι προσκέχρηται τῷ κεχρῶσθαι, τοιούτῳ δ' ὃ φανερόν ἐστιν ὑπάρχον ἀεί, εἴη ἂν κατὰ τοῦτο καλῶς ἀποδιδομένον τὸ τῆς ἐπιφανείας ἴδιον.*

Aristotle means that we know clearly, *by evidence independent of sense*, that the superficies must be the first portion of the body that becomes coloured, though we may attain the additional evidence of our senses (*προσκέχρηται*) to the same fact.

to be co-extensive with the subject, but it ought not to affirm the essence thereof. A good specimen of proprium well set out is the following, Man is an animal by nature gentle; for here the predicate is co-extensive with the subject, yet does not declare the essence of the subject.[a]

Lastly, the proprium, to be well set out, though it does not declare the essence of the subject, yet ought to begin by presupposing the generic portion of the essence, and to attach itself thereunto as a constant adjunct or concomitant. Thus, suppose the thesis to enunciate, as proprium, Animal is that which has a soul; this will not be well set out, for the predicate is not superadded or attached to the declared generic essence of animal. But, if the thesis enunciates, as proprium of man, Man is an animal capable of acquiring cognition,—this will be a proprium well set out, so far as the present objection is concerned. For here the predicate declares first the generic essence of the subject, and then superinduces the peculiar adjunct thereupon.[b]

Thus far Aristotle has pointed out certain conditions to be attended to in determining whether a Proprium is well set out or described, without determining whether it be really a Proprium or not. It may perhaps be truly predicated of the subject, and may even admit of a better description which would show it to be a proprium of the subject; but the description actually set out is defective, and the assailant is entitled to impeach it on that ground. He now proceeds to a larger discussion: What are the conditions for determining whether the supposed Proprium be really a Proprium at all, in respect to the subject of which it is predicated?

[a] Topica, V. iii. p. 131, b. 37-p. 132, a. 9. [b] Ibid. a. 10-21.

Assuming that the description of it is not open to impeachment on any of the grounds above enumerated, are there not other real grounds of objection, disproving its title to the character of Proprium ?[a]

1. Suppose your respondent to set up A as a proprium of B: you will examine first whether A can be truly predicated of B at all; next, if it can so be, whether it is truly predicable of B *quâ* B, or of every thing that comes under B *quâ* B. Thus, if he contends that not to be deceived by reason is a proprium of scientific men, you will be able to show that this does not hold in geometry, since geometricians are deceived by pseudographemes or scientific paralogisms. Or, should the respondent deny that A is a proprium of B, you will succeed in refuting him, if you can prove that A is truly predicable of every B and *quâ* B. Thus, it is a proprium of man to be an animal capable of acquiring knowledge; because that attribute is truly predicable of every man *quâ* man.[b]

2. Again, suppose your respondent affirms a given

[a] Topica, V. iii. p. 132, a. 22-27. *πότερον μὲν οὖν καλῶς ἢ οὐ καλῶς ἀποδέδοται τὸ ἴδιον, διὰ τῶνδε σκεπτέον· πότερον δ' ἴδιόν ἐστιν ὅλως τὸ εἰρημένον ἢ οὐκ ἴδιον, ἐκ τῶνδε θεωρητέον.*

The distinction here noted by Aristotle (between the two questions :—(1) Whether the alleged Proprium is well set out or clearly described? (2) Whether the alleged Proprium is a Proprium at all?) is not carried out, nor indeed capable of being carried out, with strict precision. The two heads of questions run together and become confounded. Alexander remarks (Scholia, p. 284, b. 24-46, Br.) that the three or four last-mentioned *loci* under the first head embrace the second head also. He allows only three *loci* as belonging peculiarly to the first head—*τοῦ μὴ καλῶς ἀποδεδόσθαι τὸ ἴδιον* :—(1) Equivocal terms; (2) Predicate not reciprocating or coextensive with subject; (3) Predicate not more knowable than subject. The other *loci* (besides these three) enumerated by Aristotle under the first head, Alexander considers as belonging equally to the second head. But he commends Aristotle for making a distinction between the two heads: *οὐ γὰρ πᾶν τὸ ἀπηλλοτριωμένον τούτων, καὶ μὴ ἔχον ὁμωνύμους φωνὰς ἤ τι τῶν εἰρημένων, καὶ ἴδιον ῥητέον ἐξ ἀνάγκης.* The manner in which M. Barthélemy St. Hilaire explains this nice distinction is not clear to me (Note to his translation of Topica, p. 177).

[b] Topica, V. iv. p. 132, a. 27, seq.

proprium A of B: you will examine whether A can be truly predicated of every thing called B, and whether B can be truly predicated of every thing called A; if not, the alleged proprium will not hold. Thus the affirmation, A god is an animal participant of knowledge, is a true affirmation; but it would not be true to say, A god is a man: wherefore, to be participant of knowledge is not proprium of man; and, if this be the proprium which the respondent undertakes to maintain, you will be able to refute him. On the other hand, if what he undertakes is the negation of a proprium (A is not a proprium of B), you will establish the affirmative against him by showing that of every thing respecting which A can be truly affirmed B can be affirmed also, and *vice versâ*. You will thus show that A is a true proprium of B.[a]

3. Again, the respondent may perhaps affirm the subject itself as a proprium of something inherent in the subject. You may refute this by showing that, if it were so, the same thing would be a proprium of several things differing from each other in species. On the other hand, the respondent may perhaps deny that something inherent in the subject is a proprium: you may then refute him by showing that it is truly predicable of the subject only, and not truly predicable of any thing else.[b]

4. The respondent may perhaps affirm as a proprium something contained in the essence of the subject: if so, you will refute him by showing this. On the other hand, if he denies something to be a proprium, you will refute him by showing that, though it is not contained

[a] Topica, V. iv. p. 132, b. 8-18.

[b] Ibid. b. 19-34. Alexander, in the Scholia (p. 285, a. 14, Br.) has stated this *locus* more clearly than Aristotle—τὸ γὰρ ἴδιον ὑπάρχειν δεῖ ἐν ἑτέρῳ, οὐχ ἕτερον ἐν αὐτῷ.

in the essence of the subject, it is nevertheless predicable co-extensively therewith.[a]

5. The respondent may affirm as a proprium that which is not a necessary concomitant of the subject, but may either precede or follow it. Or, on the other hand, he may deny something to be a proprium which you can show to be a constant and necessary concomitant of the subject, without being included either in its definition or differentia. In each case you will have a ground for refuting him.[b]

6. The respondent may affirm as a proprium of the subject what he has already denied of the same subject under some other name; or he may deny of it what he has already affirmed of it under some other name. You will have grounds for refuting him.[c]

7. If there be two subjects (*e.g.*, man and horse) the same with each other in species, the respondent may affirm respecting one of them a proprium which is not the same in species with the proprium of the other. Thus, it is not a constant proprium of horse to stand still spontaneously; accordingly neither is it a constant proprium of man to move spontaneously; these two propria being the same in species, and belonging both to man and to horse *quatenus* animal.[d] If, therefore, the respondent affirms the one while he denies the other, you have an argument in refutation. On the other hand, he may propound as thesis the denial of the one

[a] Topica, V. iv. p. 132, b. 35-p. 133, a. 11.

[b] Ibid. a. 12-23. [c] Ibid. a. 24-32.

[d] Ibid. a. 35-b. 5. *οἷον ἐπεὶ ταὐτόν ἐστι τῷ εἴδει ἄνθρωπος καὶ ἵππος, οὐκ ἀεὶ δὲ τοῦ ἵππου ἐστὶν ἴδιον τὸ ἑστάναι ὑφ' αὑτοῦ, οὐκ ἂν εἴη τοῦ ἀνθρώπου ἴδιον τὸ κινεῖσθαι ὑφ' αὑτοῦ· ταὐτὸν γάρ ἐστι τῷ εἴδει τὸ κινεῖσθαι καὶ ἑστάναι ὑφ' αὑτοῦ, ᾗ ζῴῳ ἐστὶν ἑκατέρῳ αὐτῶν τὸ συμβεβηκέναι.* The last words are very obscure: they are explained by Waitz (p. 486)—"ᾗ τὸ συμβεβηκέναι ἑκάτερον (τὸ κινεῖσθαι καὶ ἑστάναι ὑφ' αὑτοῦ intell.) ἑκατέρῳ αὐτῶν ἐστὶ συμβεβηκέναι ᾗ ζῴῳ, quatenus utrumque de utroque, quatenus animal est, prædicatur."

proprium, while he affirms or admits the other. Here too you will be able to make good the counter-affirmation against his denial, on the ground of that which he admits. Thus, if it be proprium of man to be a walking-biped, it must also be proprium of bird to be a flying-biped. The two pairs, man and bird, walking and flying, are the same in species with each other, since both pairs are subordinates under the same genus: man and bird are species, flying and walking are differentiæ, under the same genus animal. This *locus*, however, is not universally applicable; for perhaps one of the two predicates may not be of exclusive application to the subject, but may belong to other subjects also. Thus walking-biped designates only one variety—man; but walking-quadruped designates several—horse, ass, dog, &c. Walking-quadruped therefore is not a proprium of horse.[a]

8. There is some difficulty in discussing the proprium, when the respondent is assailed by a sophistical dialectician who avails himself of the equivocal application of *Idem* and *Diversum:* contending that Subject with an Accident becomes a different subject—*e.g.*, *homo albus*, a subject different from *homo* (so that, when a proprium has been shown to belong to *homo*, it has not been shown that the same proprium belongs to *homo albus*); and that the Abstract is a different subject from the Concrete—*e.g.* cognition, from the cognizing man (so that what has been shown as proprium of cognition has not been shown as proprium of the cognizing man). If the respondent shall himself set up

[a] Topica, V. iv. p. 133, b. 5-14. Alexander declares this *locus* to be obscure. He comments, not without reason, on the loose manner in which Aristotle uses the term *εἶδος*; and he observes that Aristotle himself admits the *locus* to be *κατά τι ψευδής* (Schol. p. 285, a. 40-45, Br.). It is strange to read that man and horse, man and bird, are *ταὐτὸν εἴδει*, the same in *species*.

these negatives, leaving to you the task of establishing the proprium against him, you will meet him by saying that *homo* is not a subject absolutely different and distinct from *homo albus*, but that there is only a notional distinction, the same subject having here two names each with a distinct connotation: *homo* has its own connotation; *homo albus* has also its own connotation, embodying in one total that which each of the terms connotes. And, when the Sophist remarks that what is a proprium of *scientia* cannot be predicated also as a proprium of *homo sciens*, you will reply that it may be so predicated, only with a slight change of inflection. For you need not scruple to employ sophistical refutation against those who debate with you in a sophistical way.[a]

9. The respondent may perhaps intend to affirm as proprium something which by nature belongs to the subject; but he may err in his mode of stating it, and may predicate it as always belonging to the subject. Thus, he may predicate biped as a proprium always belonging to man. Under this mode of expression, you will be able to show that he is wrong; for there are

[a] Topica, V. iv. p. 133, b. 15-p. 134, a. 4. *πρὸς γὰρ τὸν πάντως ἐνιστάμενον, πάντως ἀντιτακτέον ἐστίν.* It appears to me that Aristotle is not entitled to treat this objection as *sophistical* (*i. e.* as unfair Dialectic). He is here considering predication as Proprium, contrasted with predication as Accident. What is true as an accident respecting *homo albus*, will also be true as an accident respecting *homo:* but what is true as a proprium respecting *homo albus*, will not be true as a proprium respecting *homo*—nor *vice versâ*. This is a good *locus* for objections in predication of Proprium. There is a real distinction between *homo* and *homo albus;* between Koriskus and Koriskus *albus:* and one of the ways of elucidating that distinction is by pointing out that the proprium of one is not the same as the proprium of the other. Aristotle treats those who dwelt upon this distinction as Sophists: what their manner of noticing it may have been he does not clearly tell us; but if we are to have that logical accuracy of speech which *his* classification and theory demand, this distinction must undoubtedly be brought to view among the rest.

some men who have not two feet. On the other hand, if the respondent denies biped to be a proprium of man, relying upon the statement that it is not actually true of every individual, you will be able to show against him that it is so in the correct phraseology of belonging to man by nature.[a]

10. That which is affirmed as a proprium may belong to its subject either primarily and immediately, or in a secondary way—relatively to some prior denomination of the same subject. In such cases it is difficult to set out the proprium in terms thoroughly unobjectionable. Thus, the superficies of a body is what is *first* coloured: when we speak of *corpus album*, this is by reason of its white superficies. *Album* is a proprium true both of body and of superficies; but the explanation usually given of Proprium will not hold here—that, wherever the predicate can be affirmed, the subject can be affirmed also. *Album* is proprium of superficies; and *album* can be truly affirmed as also proprium of body; but superficies cannot be truly affirmed of body.[b]

11. The respondent who is affirming a Proprium may sometimes err by not clearly distinguishing in what mode, and in respect to what precise subject, he intends to affirm it. There are ten different modes, in one or other of which he always proposes to affirm it:[c]—

[a] Topica, V. v. p. 134, a. 5-17. This *locus* is a question rather of phraseology than of real fact, and seems therefore rather to belong to the former class of *Loci* respecting the Proprium —*πότερον καλῶς ἢ οὐ καλῶς ἀποδέδοται τὸ ἴδιον*—than to the present class, which Aristotle declares (V. iv. p. 132, a. 25) to relate to the question *πότερον ἴδιόν ἐστιν ὅλως τὸ εἰρημενον ἢ οὐκ ἴδιον.*

[b] Topica, V. v. p. 134, a. 18-25. This is a very obscure and difficult *locus*. I am not sure that I understand it.

[c] Ibid. a. 26-b. 4: *συμβαίνει δ' ἐν ἐνίοις τῶν ἰδίων ὡς ἐπὶ τὸ πολὺ γίνεσθαί τινα ἁμαρτίαν παρὰ τὸ μὴ διορίζεσθαι πῶς καὶ τίνων τίθησι τὸ ἴδιον. ἅπαντες γὰρ ἐπιχειροῦσιν ἀποδιδόναι τὸ ἴδιον ἢ τὸ φύσει ὑπάρχον*, &c.

He then proceeds to enumerate the ten diversities of Proprium which I

a. As belonging to the subject by nature. *E.g.*, Biped is by nature a proprium of man.

b. As belonging to the subject simply—in some way or other. *E.g.*, To have four fingers, belongs to Koriskus or some other individual man.

c. As belonging to the *species*. *E.g.*, It belongs to fire to be the most subtle of all bodies.

d. As belonging absolutely (ἁπλῶς, καθάπερ ζῴου τὸ ζῆν)—in virtue of the essence of the subject—*per se*.*

e. As belonging to the subject by reason of some primary intervening aspect or attribute thereof. *E.g.*, Prudence is a proprium of the soul, looked at *quatenus* reasonable or intellectual.

f. As belonging to that primary attribute or special aspect, logically distinguished and named separately from the subject. *E.g.*, Prudence is a proprium of the *logistikon* or *rationale*.

g. As belonging to the subject viewed as possessing or holding in possession. *E.g.*, The scientific man possesses that acquired mental habit which renders him incapable of having his convictions farther altered by discussion.

h. As belonging to some possession held by a possessing person. *E.g.*, Science is unalterable by discussion; where science, a possession of the scientific man, is assigned as subject of the proprium, unalterable by discussion.

have given in the text: this paragraph also is very obscure.

I cannot but repeat the remark here (which I made *supra* p. 460), that the contents of this paragraph also belong to the former investigation (*viz.*, How ought the Proprium to be set out and described?) rather than to the present investigation (*viz.*, Whether the alleged Proprium is really a Proprium of the assigned subject or not?).

* Topica, V. v. p. 134, a. 32: ἢ ἁπλῶς, καθάπερ ζῴου τὸ ζῆν. Is not τὸ ζῆν included in the *essentia* (τὸ τί ἦν εἶναι) of ζῷον? If so, how can it be admitted as a *proprium* thereof?

i. As belonging to a subject which is partaken or held in participation by another subject lying behind. *E.g.*, Sensible perception is a proprium of the genus animal, which genus is partaken or held in participation by this individual man, that individual horse, &c.; whence it may be predicated not only of animal but also of man, as thus participant.

k. As belonging to the ultimate subject partaking. *E.g.*, To live is a proprium of this particular man or horse, participant in the genus animal, in the way just indicated.

Now each of these varieties of the Proprium is liable to its own mode of erroneous setting out or description. Thus the corresponding errors will be :—[a]

a. Not to add the qualifying words *by nature.*

b. Not to state the proprium as simply belonging, when it does only belong to the subject now, and may presently cease to belong.

c. Not to state the proprium as belonging *to the species.* If he omits these words, he may be told that it belongs to one variety alone among the species (*e.g.*, should it be a superlative) and not to others: perhaps it may belong to some conspicuously, and to others faintly. Or perhaps, if he does add the express words —*to the species*, he may err, inasmuch as there exists no real species properly so called.

e. f. Not to distinguish whether he means to affirm it of B by reason of A, or of A directly: he

[a] Topica, V. v. p. 134, b. 5-p. 135, a. 5. For the fourth head (*d.*), no corresponding error is assigned. It should be noted that the illustration given of it, and remarked upon at the foot of the last page, is repeated for the concluding head of the list.

will lay himself open to the objection that his proprium, and the subject term of which he declares it to be a proprium, are not co-extensive in predication.

g. h. Not to distinguish whether he intends as subject the person possessing, or the possession. If he leaves this undetermined, the objector may attack him on one ground or the other.

i. k. Not to distinguish whether he means as subject the partaker, or the genus which is partaken. Here too the objector will have ground for attack either from one side or from the other.

In case the respondent should enunciate his proprium in any one of the above defective ways, you will thus know where to find objections against him. But, if you undertake yourself to enunciate a proprium, you will avoid laying yourself open to the objections, by discriminating under which of these heads you intend to affirm it.[a]

12. Again, the respondent may perhaps affirm as proprium a predicate really identical with the subject, though under a different name. Thus, he may declare *τὸ πρέπον* to be a proprium *τοῦ καλοῦ*: you may then refute him by showing that *πρέπον* is identical with *καλόν*. If he is on the negative side, denying A to be a proprium of B on the ground that A is identical with B, you will make out the affirmative against him by showing that A is not identical with B, but only co-extensive and reciprocating therewith. Thus, you may

[a] Topica, V. v. p. 135, a. 5: *ἄλλου μὲν οὖν οὕτως ἀποδιδόντος τὸ ἴδιον ἐπιχειρητέον, αὐτῷ δ' οὐ δοτέον ἐστὶ ταύτην τὴν ἔνστασιν, ἀλλ' εὐθὺς τιθέμενον τὸ ἴδιον διοριστέον ὃν τρόπον τίθησι τὸ ἴδιον.*

show that animated substance is not identical with animal, but a proprium of animal.[a]

13. Where the subject is *homœomeric*, the respondent may declare as proprium of the whole what cannot be truly affirmed as proprium of a part separately; or he may declare as proprium of a part separately what cannot be truly declared as proprium of the whole. In either case, you have a plausible argument for refuting him; but your refutation will not be always conclusive, because there are various cases in which what is true of each homœomeric part is not true of the whole; and *vice versâ*. If your position in the debate is affirmative, you will select as illustration some case in which what is by nature true of the whole is also true of each separate part: *e.g.*, The earth as a whole, and each of its parts, tend by nature downwards. This is a proprium of the earth.[b]

14. Respecting *Opposita*, there are different *loci* for different varieties.

a. Contraria.—Suppose the respondent to affirm A as proprium of B: you will examine whether the contrary of A is proprium of the contrary of B. If it be not, then neither is A proprium of B. Thus, if best is not a proprium of justice, neither can worst be a proprium of injustice. If the respondent is on the negative side, you may prove the affirmative against him by showing that the contrary of the alleged proprium is a proprium of the contrary of the alleged subject.[c]

b. Relata.—Suppose the respondent to affirm a *relatum* A as proprium of a *relatum* B, you may refute him by showing that the correlate of A is not proprium

[a] Topica, V. v. p. 135, a. 11-19. [b] Ibid. a. 20-b. 6.
[c] Ibid. vi. p. 135, b. 7-16.

of the correlate of B. Suppose him to deny the same, you will refute him by proving the affirmative between correlate and correlate.[a]

c. Habitus et Privatio.—Suppose the respondent to affirm an attribute of the *habitus* B, as proprium thereof: you may refute him by showing that the corresponding attribute of the *privatio* correlating with *habitus* B, is not proprium of that *privatio*. Suppose him to take the negative side, you will refute him by proving the affirmative of this latter proposition.[b]

15. Respecting Contradictory Propositions (affirmation and negation of the same), more than one mode of dealing may be stated. Wherever the affirmation is a proprium of the subject, the negation cannot also be a proprium thereof; and *vice versâ*. If the affirmative predicate be not a proprium of the affirmative subject, neither can the negative predicate be proprium of the negative subject; and *vice versâ*. If the affirmative predicate be proprium of the affirmative subject, the negative predicate will also be proprium of the negative subject. The same predicate cannot be proprium both of the affirmative subject and of the negative subject.[c]

16. Respecting two or more Contra-Specific Terms under the same genus and exhausting the whole genus:—Suppose A and B contra-specific terms used as subjects; C and D contra-specific terms used as predicates. If C be not a proprium of A, neither will D be a proprium of B; thus, if perceivable (*αἰσθητόν*) is not a proprium of any other species (except gods) included under the genus animal, neither will intelligible (*νοητόν*)

[a] Topica, V. vi. p. 135, b. 17-26.
[b] Ibid. b. 27-p. 136, a. 4.
[c] Ibid. p. 136, a. 5-b. 2. This *locus* is declared by Aristotle to furnish arguments for refutation only, and not for proof.

be proprium of a god. Again, if C be a proprium of A, D also will be a proprium of B. Thus, if it be a proprium of prudence to be by its own nature the excellence of the rational or calculating soul (λογιστικοῦ), we must also affirm as proprium of temperance that it is the excellence of the appetitive soul (ἐπιθυμητικοῦ).[a]

17. Respecting Cases or Inflections, either of the subject B, or the predicate A :—If the case or inflection of the predicate be not a proprium of the corresponding case or inflection of the subject, neither will the predicate be proprium of the subject. If the case or inflection of the predicate be a proprium of the corresponding case or inflection of the subject, then the predicate itself will also be proprium of the subject. *Pulchré* is not proprium of *justé*; therefore, *pulchrum* is not proprium of *justum*.

This *locus* will be found available in combination with the preceding *locus* bearing on *Opposita*. Not only *opposita* themselves, but also the cases and inflections of *opposita*, may be adduced as arguments, following the rules above laid down.[b]

18. Analogous cases or propositions :—If the respondent affirms A as proprium of B, you have an argument against him by showing that something analogous to A is not proprium of a subject analogous to B. Thus, the builder, in relation to house-making, is analogous to the physician, in relation to health-

[a] Topica, V. vi. p. 136, b. 3-13. "Il faut supposer ici quatre termes, qui sont deux à deux les membres d'une division : si le premier n'est pas le propre du troisième, le second ne le sera pas du quatrième ; et réciproquement pour la négation d'abord. Les quatre termes sont ici : sensible, intelligible, membres d'une même division : mortel, divinité, membres d'une autre division." (Barthélemy St. Hilaire, p. 197.)

[b] Topica, V. vii. p. 136, b. 15-32.

making; now health-making is not the proprium of the physician, and therefore neither is house-making the proprium of the builder. If the respondent has advanced a negative, you will apply this same *locus* in the affirmative against him: *e.g.*, as it is the proprium of the gymnast to impart a good habit of body, so it is the proprium of the physician to impart health.[a]

19. *Esse*, and *Generari* or *Fieri*:—If A considered as *Ens* is not the proprium of B considered as *Ens*, then neither will A considered as *Fiens* be the proprium of B considered as *Fiens*. *Vice versâ*, on the affirmative side: if the former of these two be the fact, you may argue that the latter is the fact also.[b]

20. Comparison with the Idea:—If the respondent sets up A as proprium of B, you will turn your mind to the Idea of B, and note whether A is proprium of this Idea, in the same sense and under the same aspect as it is affirmed to be proprium of B. If it be not so, you will have an argument in refutation of the respondent. Thus, if he maintains that it is a proprium of man to be at rest, you will argue that this cannot be so, because to be at rest is not the proprium of the Self-man (*αὐτοάνθρωπος*) *quatenus* man, but *quatenus* Idea. *Vice versâ*, you will have an affirmative argument, if you can show that it is the proprium of the Idea. Thus, since it is a proprium of the self-animal *quatenus* animal to be composed of soul and body, you may infer that to be composed of soul and body is really a proprium of animal.[c]

21. *Locus* from More and Less:—Suppose the respondent to affirm A as proprium of B: you will have an argument against him, if you can show that

[a] Topica, V. vii. p. 136, b. 33-p. 137, a. 7. [b] Ibid. a. 21-b. 2.
[c] Ibid. b. 3-13.

what is more A is not proprium of that which is more B. Thus, if to be more coloured is not proprium of that which is more body, neither is to be less coloured proprium of that which is less body; nor is to be coloured proprium of body simply. *Vice versâ*, if you can show that what is more A is proprium of what is more B, you will have an affirmative argument to establish that A is proprium of B. Thus, to perceive more is proprium of that which is more living. Hence, to perceive simply is proprium of that which is living simply; also, to perceive most, least, or less, is proprium of that which is most, least, or less living, respectively.[a]

If you can show that A simply is not proprium of B simply, you have an argument to establish that what is more or less A is not proprium of that which is more or less B. If, on the other hand, you show the affirmative of the first, this will be an argument sustaining the affirmative of the last.[b] Perhaps you can show that what is more A is not proprium of what is more B: this will be an argument to show that A is not proprium of B. Thus, to perceive is more proprium of animal than to know is proprium of man; but to perceive is not proprium of animal; therefore, to know is not proprium of man. Or again, if you can show that what is less A is proprium of what is less B, this will form an argument to show that A is proprium of B. Thus, natural mansuetude is less proprium of man than life is proprium of animal; but natural mansuetude *is* proprium of man: therefore life is proprium of animal.[c] Farther, if you can show that A is more a proprium of C than it is a proprium

[a] Topica, V. viii. p. 137, b. 14-27. [b] Ibid. b. 28-p. 138, a. 3.
[c] Ibid. p. 138, a. 4-12.

of B, yet nevertheless that it is *not* a proprium of C you may thence argue that A is not a proprium of B. Thus, to be coloured is more a proprium of superficies than it is a proprium of body; yet it is not a proprium of superficies; therefore, it is *not* a proprium of body. This last variety of the *locus* of More and Less (Aristotle remarks) affords no corresponding affirmative plea;[a] for the same predicate cannot be a proprium of many subjects. If A be really a proprium of superficies, it cannot be also proprium of body. Lastly, you may perhaps be able to show that C is more a proprium of B than A is a proprium of B; yet, if C is *not* a proprium of B, you will infer negatively that neither is A proprium of B. Thus, to be perceivable is more proprium of animal, than to be divisible is proprium of animal; yet to be perceivable is *not* proprium of animal, and, therefore, neither is to be divisible proprium of animal. You may invert this argument for the affirmative, if you can show that C is less a proprium of B than A is a proprium of B, yet still that C *is* a proprium of B; hence you will infer, *à fortiori*, that A is a proprium thereof. *E.g.*, If to perceive is less a proprium of animal than to live is a proprium thereof, yet to perceive *is* a proprium of animal; then, to live is so likewise.[b]

22. *Locus* from Equal Relation:—Arguments both negative and affirmative may in like manner be obtained by comparing different things which are (not more or less propria, but) alike or equally propria of some other subject. If A is as much a proprium of B as C is proprium of D, while yet A is *not* a proprium of B, you may hence infer that C is not a proprium of D. If, under this hypothesis, A *is* a proprium of B, you may

[a] Topica, V. viii. p. 138, a. 13-20: | *ἐστι χρήσιμος· ἀδύνατον γάρ ἐστι ταὐτὸ*
κατασκευάζοντι δὲ ὁ τόπος οὗτος οὐκ | *πλειόνων ἴδιον εἶναι.* [b] Ibid. a. 21-30.

infer affirmatively that C is a proprium of D.[a] Or, if A and C be, alike and equally, propria of the same subject B, then, if you show that A is not proprium thereof, you will infer negatively that C is not so; if you show that A *is* proprium of B, you will infer affirmatively that C is so likewise. Or, thirdly, if A be, alike and equally, a proprium of B and of E, then, if you can show that A is *not* a proprium of E, you may infer negatively that it is *not* a proprium of B. Here, however, the counter-inference affirmatively is not allowable; for the same proprium cannot belong as proprium to two distinct subjects, as was stated before.[b]

23. *Locus* from Potentiality:—No potentiality whatever can belong to *Non-Ens*. Accordingly, if A, the proprium affirmed of a subject B, is a potentiality, this must imply some real *Ens* in which it inheres, and which is correlate to the subject. But, if in the specification of the proprium no allusion is made to such correlate, you will attack it as a bad proprium—as a potentiality inhering in *Non-Ens* or nothing. *E.g.*, if the case be, It is a proprium of air to be respirable, you will refute this by pointing out that this is true only when there exist animals in whom the potentiality of breathing resides; that no mention is made by the respondent of this correlate or of any other correlate; in other words, that, so far as the specification is concerned, the correlate is passed over as *Non-Ens* or a non-entity. Therefore the proprium is not a good proprium.[c] Again, suppose the affirmation to be, It is

[a] Topica, V. viii. p. 138, a. 30-b. 15.

[b] Ibid. b. 16-22.

[c] Ibid. ix. p. 138, b. 27-37. *οἷον ἐπεὶ ὁ εἶπας ἀέρος ἴδιον τὸ ἀναπνευστόν τῇ δυνάμει μὲν ἀπέδωκε τὸ ἴδιον (τὸ γὰρ τοιοῦτον ἴδιον οἷον ἀναπνεῖσθαι ἀναπνευστόν ἐστιν), ἀποδέδωκε δὲ καὶ πρὸς τὸ μὴ ὂν τὸ ἴδιον· καὶ γὰρ μὴ ὄντος ζῴου, οἷον ἀναπνεῖν πέφυκε τὸν ἀέρα, ἐνδέχεται ἀέρα εἶναι· οὐ μέντοι μὴ ὄντος ζῴου δυνατόν ἐστιν ἀναπνεῖν· ὥστ' οὐδ' ἀέρος ἔσται ἴδιον τὸ τοιοῦτον οἷον ἀναπνεῖσθαι, τότε ὅτε ζῷον οὐκ*

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a proprium of *Ens* to be capable of doing or suffering something; this will be defensible because it is only when the subject *is Ens*, that it is declared to have such proprium.[a]

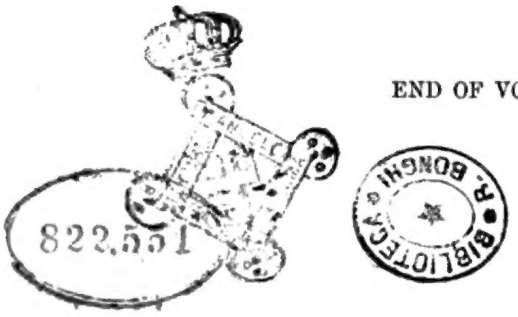
24. *Locus* from the Superlative: — Suppose the affirmation to be, It is a proprium of fire to be the lightest of all bodies: this you may refute by showing that, if fire ceased to exist, there would still be some other body the lightest of all bodies. Therefore the proprium may still be predicated of something else, when its alleged subject has ceased to exist. The proprium and its subject are not reciprocating and co-extensive; therefore it is not a true proprium.[b]

ἔσται τοιοῦτον οἷον ἀναπνεῖν. οὐκ ἂν οὖν εἴη ἀέρος ἴδιον τὸ ἀναπνευστόν.

Respirability (the proprium here discussed) being a relative term, Aristotle demands that the correlate thereof shall be named and included in setting out the proprium. If this be not done, a refutative argument may be drawn from such omission — that the respondent was not aware of the relativity. We may remark here that this objection is founded on a bad or incomplete specification of the proprium in question: it is not an objection against the reality of that proprium itself, if carefully described. The objection belongs to that class which Aristotle had discussed before, at the commencement of Book V.

[a] Topica, V. ix. p. 139, a. 1-8.

[b] Ibid. a. 9-20.



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